UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
West Coast Region
1201 NE Lloyd Boulevard, Suite 1100
Portland, Oregon 97232-1274

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Refer to NMFS No: WCRO-2020-01034

July 29, 2020

Charles A. Mark

Dear Mr. Mark:

Thank you for your letter of May 5, 2020, requesting initiation of consultation with NOAA's National Marine Fisheries Service (NMFS) pursuant to section 7 of the Endangered Species Act of 1973 (ESA) (16 U.S.C. 1531 et seq.) for the Hawley Creek Cattle and Horse Grazing Allotment. This consultation was conducted in accordance with the 2019 revised regulations that implement section 7 of the ESA (50 CFR 402, 84 FR 45016).

The Salmon–Challis National Forest (SCNF) determined that the proposed action "may affect, but is "not likely to adversely affect" designated critical habitat for Snake River spring/summer Chinook salmon. In an April 1, 2020, letter, NMFS informed the SCNF that we would be unable to provide concurrence with the draft biological assessment's "Not Likely to Adversely Affect" determination for Snake River spring/summer Chinook salmon designated critical habitat because the Allotment is not meeting riparian management objectives at multiple monitoring locations. NMFS also noted that formal consultation would be required. In this opinion, NMFS concludes that the action, as proposed, is not likely to result in the destruction or adverse modification of designated critical habitat for Snake River spring/summer Chinook salmon.

The SCNF also determined the proposed action would have "no effect" on Snake River spring/summer Chinook salmon, Snake River sockeye salmon, Snake River Basin steelhead, and designated critical habitat for Snake River sockeye salmon, and Snake River Basin steelhead. The regulations implementing section 7 of the ESA do not require NMFS to review or concur with "no effect" determinations; therefore NMFS will not address effects to these species or designated critical habitats in the attached opinion.

Thank you, also, for your request for consultation pursuant to the essential fish habitat (EFH) provisions in section 305(b) of the Magnuson–Stevens Fishery Conservation and Management Act (MSA) (16 U.S.C. 1855(b)) for this action. The opinion includes five Conservation

Recommendations to help avoid, minimize, or otherwise offset potential adverse effects on EFH. These Conservation Recommendations are a non-identical set of the ESA Conservation Recommendations. Section 305(b)(4)(B) of the MSA requires federal agencies provide a detailed written response to NMFS within 30 days after receiving these recommendations.

If the response is inconsistent with the EFH Conservation Recommendations, the SCNF must explain why the recommendations will not be followed, including the justification for any disagreements over the effects of the action and the recommendations. In response to increased oversight of overall EFH program effectiveness by the Office of Management and Budget, NMFS established a quarterly reporting requirement to determine how many Conservation Recommendations are provided as part of each EFH consultation and how many are adopted by the action agency. Therefore, in your statutory reply to the EFH portion of this consultation, NMFS asks that you clearly identify the number of Conservation Recommendations accepted.

Please contact Mr. Dennis Daw, Snake River Branch, 208-378-5698, or dennis.daw@noaa.gov if you have any questions concerning this consultation, or if you require additional information.

Sincerely,

Michael Tehan

Michael Tehan
Assistant Regional Administrator
Interior Columbia Basin Office

Enclosure

cc: T. Ford – SCNF
K. Krieger – SCNF
D. Garcia – SCNF
C. Colter – SBT
S. Fisher – USFWS

Endangered Species Act (ESA) Section 7(a)(2) Biological Opinion and Magnuson–Stevens Fishery Conservation and Management Act Essential Fish Habitat Response

Hawley Creek Cattle and Horse Grazing Allotment

NMFS Consultation Number: WCRO-2020-01034

Action Agency: USDA Forest Service, Salmon–Challis National Forest

Affected Species and NMFS' Determinations:

ESA-Listed Species	Status	Is Action Likely to Adversely Affect Species?	Is Action Likely To Jeopardize the Species?	Is Action Likely to Adversely Affect Critical Habitat?	Is Action Likely To Destroy or Adversely Modify Critical Habitat?
Snake River spring/summer Chinook (*O. tshawytscha*)	Threatened	N/A	N/A	Yes	No

Fishery Management Plan That Identifies EFH in the Project Area	Does Action Have an Adverse Effect on EFH?	Are EFH Conservation Recommendations Provided?
Pacific Coast Salmon	Yes	Yes

Consultation Conducted By: National Marine Fisheries Service, West Coast Region

Issued By: Michael Tehan
Assistant Regional Administrator
Interior Columbia Basin Office

Date: July 29, 2020

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GLOSSARY OF ACRONYMS

ACRONYM	DEFINITION
Allotment	Hawley Creek Cattle and Horse Grazing Allotment
BA	biological assessment
BLM	Bureau of Land Management
CCSP	Climate Change Science Program
CFR	Code of Federal Regulations
CIG	Climate Impacts Group
DMA	designated monitoring area
DQA	Data Quality Act
EFH	essential fish habitat
EPA	U.S. Environmental Protection Agency
ESA	Endangered Species Act
FS	Forest Service
GES	greenline ecological status
HAPC	habitat area of particular concern
ICBTRT	Interior Columbia River Basin Technical Recovery Team
IDEQ	Idaho Department of Environmental Quality
IDFG	Idaho Department of Fish and Game
ISAB	Independent Scientific Advisory Board
ITS	incidental take statement
Level 1 Team	SCNF Interagency Level 1 Streamlining Team
MIM	multiple indicator monitoring
MS	mid-seral
MSA	Magnuson–Stevens Fishery Conservation and Management Act
NMFS	National Marine Fisheries Service
opinion	biological opinion
PBF	physical or biological feature
PCE	primary constituent element
PFMC	Pacific Fishery Management Council
PNC	potential natural community
RHCA	riparian habitat conservation area
RMO	riparian management objective
SCNF	Salmon–Challis National Forest
U.S.C.	United States Code
USDA	U.S. Department of Agriculture
USDI	U.S. Department of the Interior
USFWS	U.S. Fish and Wildlife Service
VES	very early seral
VSP	Viable Salmonid Population
W:D	width-to-depth

1. INTRODUCTION

This Introduction section provides information relevant to the other sections of this document and is incorporated by reference into Sections 2 and 3, below.

1.1. Background

The National Marine Fisheries Service (NMFS) prepared the biological opinion (opinion) portion of this document in accordance with section 7(b) of the Endangered Species Act (ESA) of 1973 (16 U.S.C. 1531 et seq.), and implementing regulations at 50 CFR 402, as amended.

We also completed an essential fish habitat (EFH) consultation on the proposed action, in accordance with section 305(b)(2) of the Magnuson–Stevens Fishery Conservation and Management Act (MSA) (16 U.S.C. 1801 et seq.) and implementing regulations at 50 CFR 600.

We completed pre-dissemination review of this document using standards for utility, integrity, and objectivity in compliance with applicable guidelines issued under the Data Quality Act (DQA) (section 515 of the Treasury and General Government Appropriations Act for Fiscal Year 2001, Public Law 106-554). The document will be available within 2 weeks at the NOAA Library Institutional Repository [https://repository.library.noaa.gov/welcome]. A complete record of this consultation is on file at the Snake Basin Office, Boise, Idaho.

1.2. Consultation History

The Salmon–Challis National Forest (SCNF) previously consulted on the Hawley Creek Cattle and Horse Allotment (Allotment) in 2010, where NMFS issued a July 23 opinion (NMFS tracking number: 2010/01662). The SCNF submitted a draft biological assessment (BA) to NMFS for review on February 6, 2020. NMFS and the SCNF Interagency Level 1 Streamlining Team (Level 1 Team) suggested edits to the SCNF during the February 26, 2020, Level 1 meeting.

On March 24, 2020, NMFS received a draft of the BA for review. NMFS made suggestions and asked for clarity on anadromous fish presence. NMFS further expressed concerns about habitat parameters not meeting PACFISH Riparian Management Objectives (RMOs). On March 15, 2020, NMFS received a revised BA. NMFS still had concerns that the habitat data were dated and asked for more current habitat data.

On May 6, 2020, NMFS received a finalized BA with updated habitat data and a letter from the SCNF requesting ESA consultation on the effects of authorizing proposed grazing activities on the Allotment. The BA made a “May Affect, Not Likely to Adversely Affect” determination for Snake River spring/summer Chinook salmon designated critical habitat.

The SCNF also determined the proposed action would have “no effect” on Snake River spring/summer Chinook salmon, Snake River sockeye salmon, Snake River Basin steelhead, and designated critical habitat for Snake River sockeye salmon, and Snake River Basin steelhead. The regulations implementing section 7 of the ESA do not require NMFS to review or concur with “no effect” determinations; therefore NMFS will not address effects to these species or designated critical habitats in the attached opinion.

On May 7, 2020, NMFS informed the SCNF with a 30-day letter that NMFS would be unable to provide concurrence with the “Not Likely to Adversely Affect” determination because many of the Allotment monitoring locations were not meeting RMOs. NMFS initiated formal consultation at that time.

NMFS shared portions of the draft opinion with the SCNF on June 15, 2020, and received comments from the SCNF on July 2, 2020. SCNF comments were considered and incorporated into the final opinion as appropriate.

1.3. Proposed Federal Action

Under the ESA, “action” means all activities or programs of any kind authorized, funded, or carried out, in whole or in part, by federal agencies (50 CFR 402.02). The SCNF proposes to permit grazing of up to 1,056 cow-calf pairs and 10 horses (3,229 Head Months) with a grazing season of July 1 through September 30 on the Allotment. The Allotment is located on the Leadore Ranger District within the Hawley Creek 5th-field hydrologic unit code (HUC) 1706020402, approximately 7 air miles from Leadore, Lemhi County Idaho (Figure 1). The Allotment is separated into seven Units: Lower Ranch, Upper Ranch, Stove Creek, Little Bear, Big Bear, Fish Pasture, and Little Bear Riparian Units. These Units will be grazed in a deferred rotation system, in which some of the grazing Units are delayed or discontinued to provide for plant reproduction, establishment, or restoration of existing plants. As with other rotational grazing systems, move times can be seasonally adjusted if prescribed move dates and or move-triggers have been reached. Within the Allotment boundary there are no state lands and an estimated 260 acres of private land parcels.

Under the MSA, federal action means any action authorized, funded, or undertaken, or proposed to be authorized, funded, or undertaken by a federal agency (50 CFR 600.910).

We considered, under the ESA, whether or not the proposed action would cause any other activities and determined that it would not.

The proposed timeline of the action is to permit grazing through December 31, 2034.
There are no streams with Chinook salmon, steelhead, or sockeye salmon present within the action area. This Allotment also contains one stream, Hawley Creek, with designated critical habitat for Snake River spring/summer Chinook salmon (Figure 2).

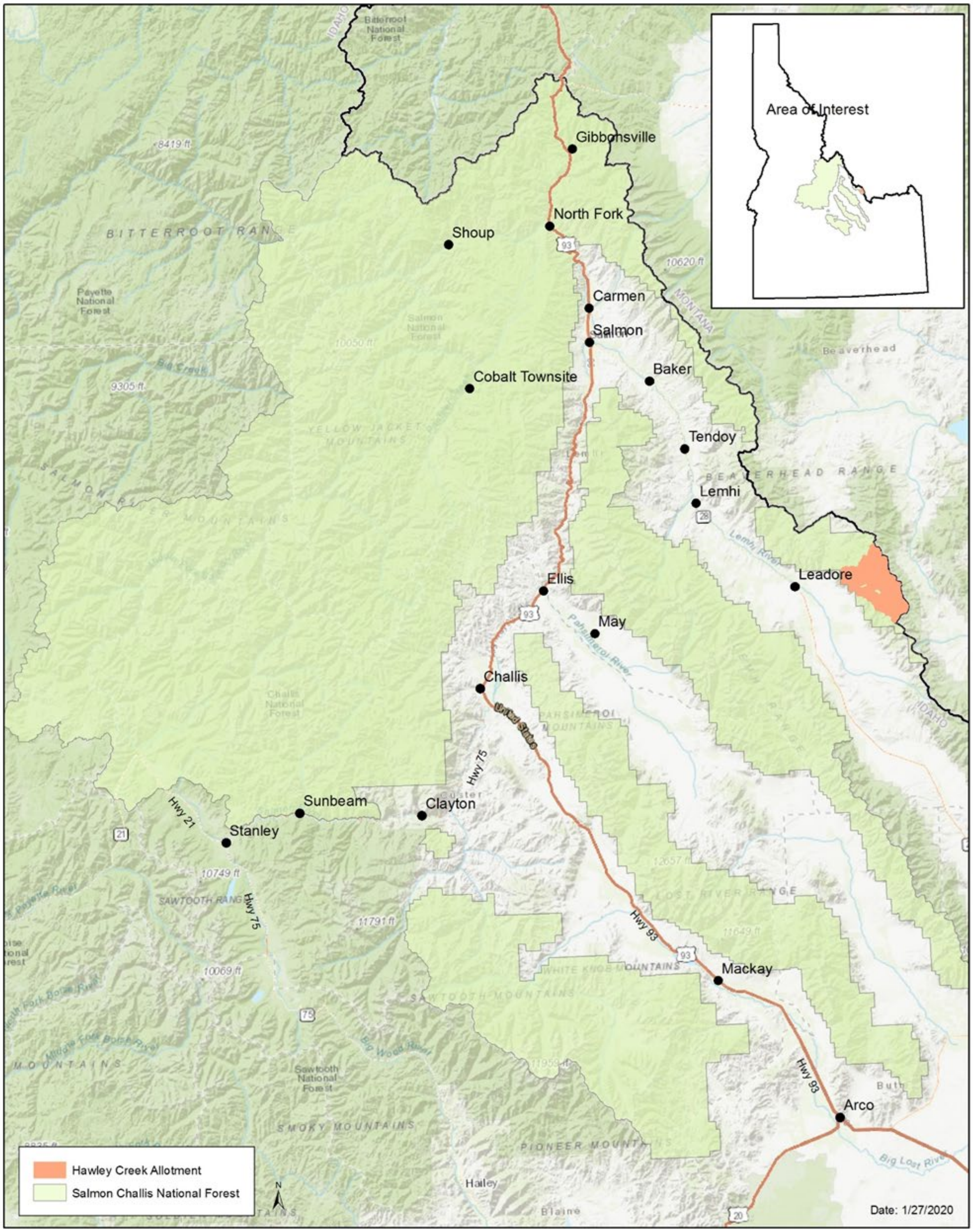

Figure 1. Hawley Creek Allotment vicinity map.

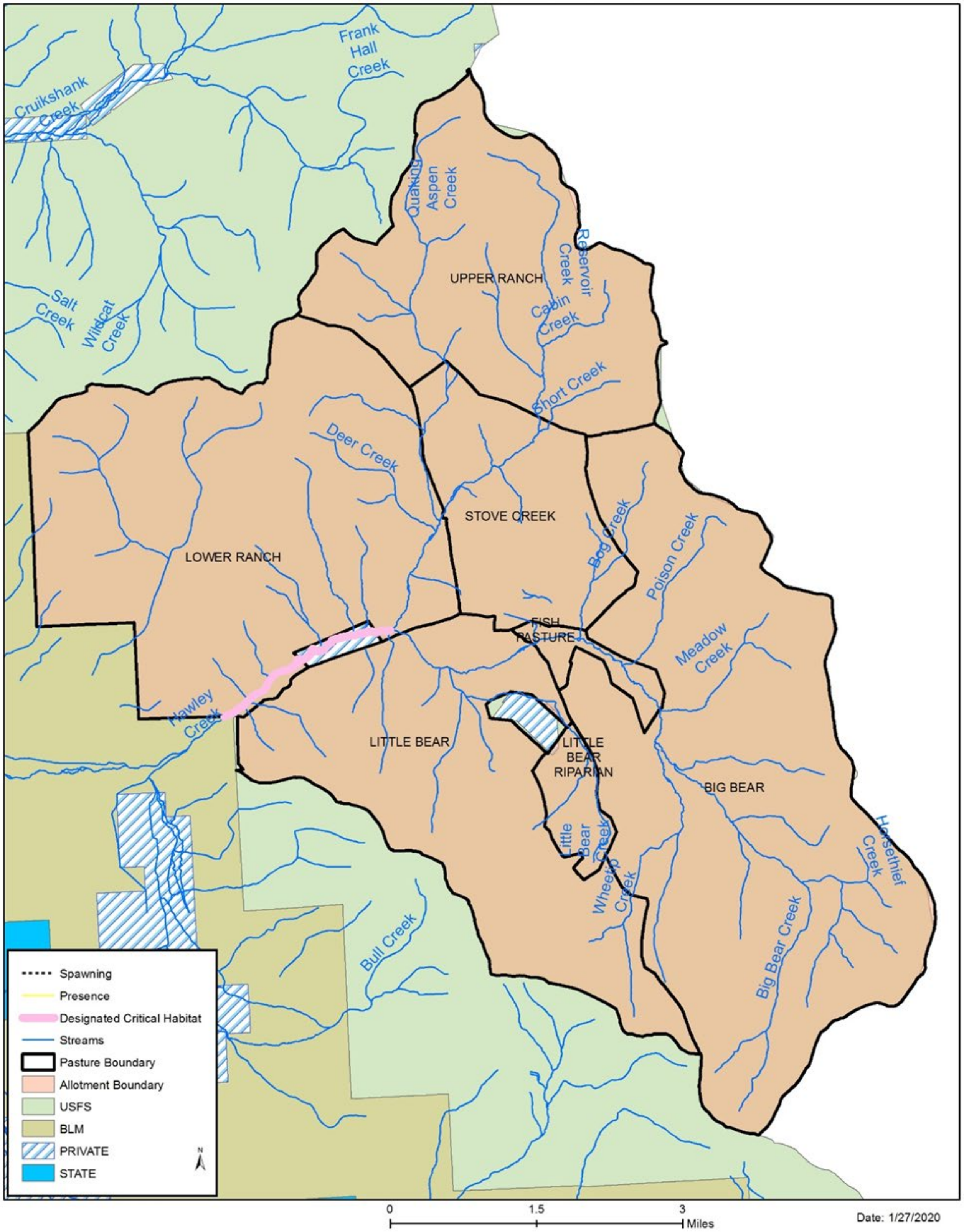

Figure 2. Map depicting location of Chinook designated critical habitat in Hawley Creek.

1.3.1. Current Permit

Permitted grazing on this Allotment provides for grazing up to 1,056 cow-calf pairs and 10 horses (3,229 Head Months) with a grazing season of July 1 through September 30.

Per direction in FSH 2209.13-10, an extension of grazing may be requested for a maximum of 2 weeks outside the dates on the term grazing permit. In considering the request, the District Ranger will follow Regional Forester direction as outlined, including compliance with the ESA Section 7 consultation requirements. An approved extension cannot result effects not considered in the opinion. Regional Forester direction also indicates that use of extensions should be an exception rather than a standard practice. On this Allotment it is not expected that a request for an extension will be received more than 4 years in 10 for early season use within the Lower Ranch Unit. It is not expected an end-of-season extension will be requested. Should an early season extension be granted, range readiness (i.e., bluebunch wheatgrass in the first boot stage or the appearance of Idaho fescue flowerstalks) will be monitored as necessary to determine if the on-date is appropriate. Adjustments to the on-date may be made if conditions warrant.

1.3.2. Grazing System

The Allotment is managed as a deferred rotation system, in which some of the Unit's grazing is delayed or discontinued to provide for plant reproduction, establishment, or restoration of existing plants (Table 1). As with other rotational grazing systems, move times can be seasonally adjusted if prescribed move dates and or move-triggers have been reached.

This Allotment is divided into seven Units: Lower Ranch, Upper Ranch, Stove Creek, Little Bear, Big Bear, Fish Pasture, and Little Bear Riparian (Figure 3). Average use is based on the last 3 years of actual use (Table 1). The average use days are indicative of past use, but do not represent a maximum or minimum number of days livestock are grazing in a unit.

There is a small horse pasture, and a piece of private land adjacent to Hawley Creek. There is a small water gap with access to Hawley Creek within the horse pasture. The horse pasture is used by the rider's horses throughout the grazing season. Timeframes and numbers of horses vary in this pasture every year throughout the grazing season. The number of horses in the pasture will never exceed 10, and is based on who the permittees have hired and the number of horses they keep (generally two to five horses with two to three being in the pasture at one time).

Table 1. Unit Rotations.

Approximate Timeline	Year 1	Year 2
July–August	Lower Ranch (partial herd) (16 avg. use days)	Lower Ranch (16 avg. use days)
	Stove Creek (partial herd) (18 avg. use days)	Upper Ranch (27 avg. use days)
	Upper Ranch (Quaking Aspen portion rested) (27 avg. use days)	Big Bear (24 avg. use days)
August–September	Big Bear (24 avg. use days)	Little Bear Riparian & Little Bear (24 avg. use days)

Approximate Timeline	Year 1	Year 2
	Little Bear Riparian & Little Bear (24 avg. use days)	Stove Creek (rest)
July–August	Fish Pasture (incidental use)	Fish Pasture (incidental use)

There is no requirement for a full time rider; however, the permittees have hired at least one rider for the last 10 years. Permittees will continue to distribute livestock away from perennial streams and associated riparian areas by riding.

There is a permanent cow camp located in the uplands (Figure 3). This cow camp is located over 700 feet from Hawley Creek and Big Bear Creek. The cow camp consists of corrals, hitching rails, campfire ring, latrine, spring fed hydrant, troughs, and parking area for trucks and camp trailer. All weed-free hay requirements are applicable to this site.

Shown below is the potential frequency and duration of livestock to be in each Unit. In practice this can vary as Unit moves are guided by managing grazing to not exceed annual use indicators.

1.3.2.1. Lower Ranch

This Unit is used at the beginning of the grazing season. Livestock are trailed and turned out into different areas to encourage distribution within the entire Unit. Average use in this Unit is 16 days. Every year at the end of the grazing season livestock are trailed, supervised, back through the Lower Ranch Unit along the Hawley Creek Road [Forest Service (FS) Road 60275] off the Allotment and on to a Bureau of Land Management (BLM) allotment. This end of the year supervised trailing off the Allotment takes approximately 1 to 2 days total.

- No anadromous ESA-listed species present.

1.3.2.2. Upper Ranch Unit

Based on actual use information reported annually by the permittee, this Unit is used an average of 27 days.

- No ESA-listed anadromous fish.

1.3.2.3. Stove Creek Unit

Based on average actual use information reported annually by the permittee, this Unit is used an average of 18 days.

- No ESA-listed anadromous fish.

1.3.2.4. Big Bear Unit

Based on average actual use information reported annually by the permittee, this Unit is used an average of 24 days.

- No ESA-listed anadromous fish.

1.3.2.5. Little Bear and Little Bear Riparian Units

Based on average actual use information reported annually by the permittee, this Unit is used an average of 24 days.

- No ESA-listed anadromous fish.

1.3.2.6. Fish Pasture Unit

The Fish Pasture receives incidental use, approximately 25 head. This use is primarily associated with trailing (no overnighting with the entire herd) or a stray that is typically picked up and moved to the current grazing Unit the next day. This straying can occur when livestock are grazing in the Big Bear, Little Bear, and the Stove Creek Units. Also, every year a very small portion of the entire herd needs to be actively trailed through the Fish Pasture Unit, while exiting off the Allotment.

- No ESA-listed anadromous fish.

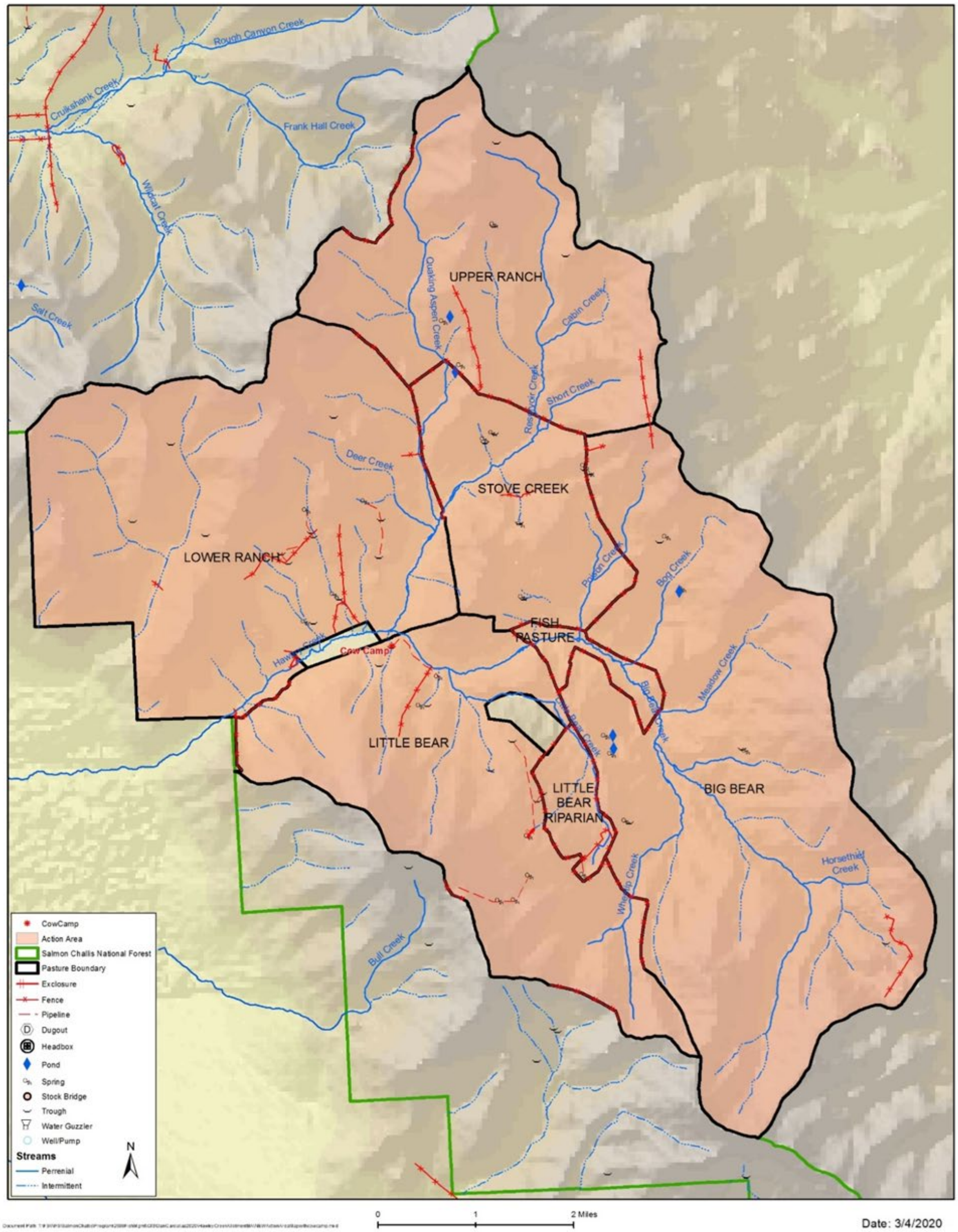

Figure 3. Unit boundaries and range improvements.

1.3.3. Trailing

1.3.3.1. Unit Moves

Stream crossings are necessary for moving livestock between Units and the streams crossed depend on the rotation and location of the livestock within the Unit. There are no defined stream crossings during Unit moves. During Unit moves there could be multiple stream crossings. Stream crossings are typically made over the course of 1 or 2 days, with the bulk of the herd typically crossing streams with riders (supervised trailing). Following or preceding this, several smaller groups may cross depending on the location of the cows, number of riders, weather, terrain, and any number of other factors. Back riding to pick up animals that did not get gathered during the move date will also occur, with subsequent crossings of these smaller groups. There may be some livestock missed in this formal move; it is up to the permittee to gather the last livestock and move them, so as to meet annual use indicators.

1.3.3.2. Entry on or Exit off the Allotment

Livestock enter the Allotment from the adjacent private land and BLM allotment, and have the potential to cross Hawley Creek. Entry onto the Allotment takes place over the course of a day or two and livestock are actively trailed with sufficient rider(s). Streams that have the potential to be crossed during the exit off the Allotment include: Hawley Creek, Reservoir Creek, and Big Bear Creek. The specific streams crossed in any year are based on the location of livestock in the last Unit being grazed. Exit off the Allotment is similar to the move between Units; supervised trailing occurs in the larger groups of livestock at first with progressively smaller groups of livestock over the following days. Every year the livestock needing to be trailed through the Fish Pasture Unit on FS Road 60177, while exiting off the Allotment, is a very small portion of the entire herd. Every year at the end of the grazing season livestock are trailed under supervision back through the Lower Ranch Unit along the Hawley Creek Road (FS Road 60275) off the Allotment and on to a BLM allotment. This end of the year supervised trailing off the Allotment takes approximately 1 to 2 days total. Livestock will be removed from the Allotment by September 30 of each year.

1.3.4. Improvements

1.3.4.1. New Improvements

There were two new water developments discussed in the 2010 BA that were not implemented due to legislation regarding water rights. Seeking additional clarification on what was presented in the BA, NMFS sent an email to the SCNF on May 27, 2020. The SCNF responded in a series of emails in an effort to clarify and supplement the information in the current BA, information received by NMFS on May 27, May 28, and June 4, 2020. The following discussion incorporates that additional information.

The first water development, Horseshoe Spring, proposal includes a springbox installation that is approximately 24 inches in diameter and 4 feet tall along with a fence. The trough site will be hardened to reduce tracks that could potentially hold water where mosquitoes may breed. The water trough will include a wildlife escape ramp and a float system to minimize overflow. The fence for Horseshoe Springs will encompass two spring sources, the spring source to be developed and an adjacent spring source 250 feet to the North. The total length will be approximately three-eighths of a mile. All fence construction will be designed to meet SCNF and Natural Resources Conservation Service wildlife standards. The fence will make a rectangular exclosure around the spring source thereby minimizing livestock impacts to the spring source. Construction on this project will be slated to take place sometime between May and October.

At this time the Horseshoe Springs water development project is on hold until further notice due to the legislation surrounding water rights. It is the understanding of the SCNF that there is legislation being discussed in the state of Idaho that may make these projects probable in the near future.

The Lower Ranch Pipeline bladder was replaced and a bladder is waiting to be tested for leaks and installed within the Little Bear Unit. An approximate 500-foot extension to the Elk Mountain fence is planned for installation in 2020. This extension will minimize any livestock travel between the Hawley Creek Allotment and the Grizzly Hill Allotment.

1.3.4.2. Existing Improvements

Existing improvements (Figure 2) will be maintained in accordance with the term grazing permit. For example, fences are maintained to serve their intended purpose; and water troughs are maintained to keep the trough functional and water from overflowing the side.

1.3.5. Changes from Existing Management

This proposed action includes the following changes from the management described in the June 1, 2010, BA. The grazing rotation was clarified to match the rotation system that was implemented. It adjusts the use of the Big Bear Unit in the grazing system and adds a component of rest into portions of the Allotment. Annual use indicators have changed as long-term monitoring dictated a need for change. The following designated monitoring area (DMAs) have had an annual use indicator change. The annual use indicators follow the recommendations as described in the SCNF's Adaptive Management Strategy.

- M276 – Big Bear Unit–Big Bear Creek changed indicators from 4-inch stubble height and 10% bank alteration to 4-inch stubble height and 15% bank alteration. Long-term read indicates that greenline ecological status (GES) went up from 72 late-seral (LS) to 83 LS, and bank stability went up from 76% to 81%.

- M303 – Lower Ranch Unit–Reservoir Creek changed indicators from 6-inch stubble height and 10% bank alteration to 6-inch stubble height and 20% bank alteration. GES increased from 14 very early seral (VES) to 41 mid-seral (MS), and bank stability went up from 79% to 99%.

- M298 – Little Bear Unit–Little Bear Creek changed indicators from 5-inch stubble height and 20% bank alteration to 4-inch stubble height and 20% bank alteration. GES rating went up from 94 potential natural community (PNC) to 100 PNC, and bank stability went from 100% to 99%.

- The Meadow Creek DMA (M280) which does not contain ESA-listed fish presence, spawning, or designated critical habitat will be removed from the annual monitoring, but will stay on the long-term monitoring schedule.

1.3.6. Resource Objectives and Standards

Resource Objectives and Effectiveness Monitoring: The Allotment is being managed to support the following resource objectives. The first three resource objectives are the most affected by livestock grazing. Resource objectives are the SCNF description of the desired land, plant, and water resources condition within riparian areas in the Allotment. Some resource objectives are RMOs from PACFISH and its corresponding opinions (NMFS 1995 and 1998). PACFISH is an interim strategy for managing anadromous fish-producing watersheds that was amended into the Salmon and Challis Forest Plans in 1995.

Effectiveness monitoring for resource objectives will be monitored at a minimum of every 5 years at DMAs using the multiple indicator monitoring (MIM) technical reference (Burton et al. 2011) or other best available science as it becomes available. Designated monitoring areas are areas representative of grazing use specific to the riparian area being accessed and reflect what is happening in the overall riparian area as a result of on-the-ground management actions. They should reflect typical livestock use where they enter and use vegetation in riparian areas immediately adjacent to the stream (Burton et al. 2011). Results from monitoring will be available at:
http://www.fs.usda.gov/detail/scnf/landmanagement/resourcemanagement/?cid=STELPRDB5308989.

1.3.6.1. Resource Objectives

Greenline Successional Status: GES value of at least 61 (LS) (Winward 2000; Burton et al. 2011).

Woody Species Regeneration: The desired condition is to have sufficient woody recruitment to develop and maintain healthy riparian woody plant populations (Winward 2000; Gamett et al. 2008), in keeping with the potential of the site.

Bank Stability RMO: The Hawley Creek Allotment is within a priority watershed (Figure 4). Within priority watersheds a bank stability is at least 90% or the current value, whichever is greatest (NMFS 1996).

Water Temperature RMO*:* Chinook salmon and steelhead—no measureable increase in maximum water temperature (7 day moving average of daily maximum temperature measured as the average of the maximum daily temperature of the warmest consecutive 7-day period) (PACFISH opinion) (NMFS 1996); <64ºF in migration and rearing areas and <60ºF in spawning areas except in steelhead priority watersheds with a <45ºF in spawning areas.

Sediment RMO: Less than 20% surface fine sediment, which is substrate <0.25 in (6.4 mm) in diameter, in spawning habitat or <30% cobble embeddedness in rearing habitat.

Management Standards (PACFISH)*:*

> GM-1 – Modify grazing practices (e.g., accessibility of riparian area to livestock, length of grazing season, stocking levels, timing of grazing, etc.) that retard or prevent attainment of RMOs or are likely to adversely affect listed anadromous fish. Suspend grazing if adjusting practices are not effective in meeting RMOs and avoiding adverse effects on listed anadromous fish (PACFISH).
>
> GM-2 – Locate new livestock handling and or management facilities outside of riparian habitat conservation areas (RHCAs). For existing livestock handling facilities inside the RHCAs, assure that facilities do not prevent attainment of RMOs or adversely affect listed anadromous fish. Relocate or close facilities where these objectives cannot be met.
>
> GM-3 – Limit livestock trailing, bedding, watering, salting, loading, and other handling efforts to those areas and times that will not retard or prevent attainment of RMOs or adversely affect listed anadromous fish.

Salmon Land Resource Management Plan (IV-30):

> General Direction: Maintain proper stocking and livestock distribution to protect riparian ecosystems.
>
> Forest Plan Standard: Continue to apply grazing treatments to riparian zones with associated aquatic habitats supporting fish populations as follows. Use the following standards to achieve long-range riparian ecosystem objectives:
>
> - Low Gradient (0–3%), moderate to small size (1–30 feet) streams, with grasses, sedges, and forbs as dominant vegetation and small bank materials—grazing guideline that forage removal should not exceed 50% of overhanging cover.
> - Moderate to high gradients (4–8%), small to moderate sized streams, with willow, alder, or birch as dominant vegetation and medium to large bank materials—grazing guideline that forage use be commensurate with maintaining vegetation vigor and reproduction.

1.3.7. Adaptive Management

The adaptive management strategy described below and depicted in the BA (Long-term and Annual) is intended for allotments requiring consultation. It will be used to ensure: (1) Sites at desired condition remain in desired condition; (2) sites not in desired condition have an upward trend or an acceptable static trend to be agreed upon with NMFS and the SCNF; and (3) direction from consultation with NMFS is met. The overall strategy consists of a long-term adaptive management strategy and an annual adaptive management strategy. The long-term strategy describes how adaptive management will be used to ensure the three resource objectives livestock directly affect are achieved and to maintain consistency with Forest Plan level direction. The annual adaptive management strategy describes how adjustments will be made within the grazing season to ensure annual use indicators and other direction from consultation is met. Both strategies describe when and how regulatory agencies will be contacted in the event direction from consultation is not going to be met.

Ideally, the value associated with the annual use indicator is customized to the specific circumstances in each Unit and is based on data and experience. However, customizing this value generally requires a significant amount of data and or experience with a particular unit. When sufficient data and or experience are not available to establish the annual use indicators values, the SCNF has provided default recommendations for establishing the values. These recommendations will be used until such time as sufficient data and or experience are available to customize the annual indicator values. The recommendations that apply to this Allotment are:

- Livestock grazing in the uplands and riparian areas will be limited to 50% use within representative use areas of the Allotment during the grazing season.

- When the GES is 61 or greater, the end-of-season median greenline stubble height annual use indicator will be 4 inches.

- When the GES is less than 61, the end-of-season median greenline stubble height annual use indicator will be 6 inches.

- When there is sufficient woody recruitment to develop and maintain healthy woody plant populations, the woody browse indicator will be 50% woody browse on multi-stemmed species and 30% woody browse on single-stemmed species.

- When there is not sufficient woody recruitment to develop and maintain healthy woody plant populations, the woody browse indicator will be 30% woody browse on multi-stemmed species and 20% woody browse on single-stemmed species.

- In priority watersheds, when bank stability is 90% or greater, the bank alteration annual use indicator will be 20%.

- In priority watersheds, when bank stability is 70–89%, the bank alteration annual use indicator will be 10–20%.

- In priority watersheds, when bank stability is less than 70%, the bank alteration annual use indicator will be 10%.

1.3.8. Annual Use Indicators

Annual use indicators are used to ensure that grazing does not prevent the attainment of the riparian resource objectives directly affected by livestock grazing. Riparian annual use indicators used on the SCNF generally include greenline stubble height, bank alteration, and woody browse. In general, greenline stubble height is used to regulate grazing impacts on GES, bank alteration is used to regulate grazing impacts on bank stability, and woody browse is used to regulate impacts on woody recruitment. The specific indicators selected for a specific unit should be those that correspond with the riparian resources that are most sensitive to the impacts of livestock grazing. For example, if bank stability was the riparian feature most likely to be impacted by livestock grazing in a unit, then bank alteration would be selected as the annual use indicator for that unit.

The annual use indicators listed in Table 2 will be used until the next effectiveness monitoring for GES, woody regeneration, and bank stability indicate adjustment is needed. Any adjustments, to meet these three resource objectives directly affected by livestock grazing, will be made using the Adaptive Management Strategy listed above. The annual use indicators in Table 2 drive when Unit moves or the off-date occurs. Permittees are responsible for moving livestock to meet these annual use indicators.

Permittees use triggers to determine when livestock need to be moved from a unit to ensure that annual use indicators are not exceeded. A trigger's numerical value varies from unit to unit, and from year to year for any unit based on the season's growing conditions, amounts of precipitation received, how long it may take to move livestock from one unit to the next, etc. As such, triggers are informally customized to the specific circumstances of each unit for the year, but may typically range from 5- to 7-inch stubble heights. While the SCNF works with the permittees to help them know how to monitor stubble height, bank alteration, and woody browse, trigger monitoring by permittees is informal (not documented) and it is not reported. The stated direction in the term grazing permit(s) is for the permittees to ensure annual use indicators are met.

Table 2. Designated monitoring areas (DMAs) and annual use indicators.

Key Area Location–DMA Locations	Unit–Stream	Monitoring Attribute	Triggers	Annual Use Indicator	Key Species
MIM – M302	Stove Creek Unit–Reservoir Creek	Browse use	25% 15%	30% 20%	Willow Alder
		Greenline stubble	7 in	6 in	Carex
		Bank Alteration	15%	20%	NA
MIM – M276	Big Bear Unit–Big Bear Creek	Browse use	25% 15%	30% 20%	Willow Alder
		Greenline stubble	5 in	4 in	Carex
		Bank Alteration	10%	15%	NA
MIM – M304	Fish Pasture Unit–Big Bear Creek	Browse use	45% 25%	50% 30%	Willow Alder
		Greenline stubble	5 in	4 in	Carex
		Bank Alteration	15%	20%	NA
MIM – M303	Lower Ranch Unit–Reservoir Creek	Browse use	45% 25%	50% 30%	Willow Alder
		Greenline stubble	7 in	6 in	Carex
		Bank Alteration	15%	20%	NA
MIM – M298	Little Bear Unit–Little Bear Creek	Browse use	45% 25%	50% 30%	Willow Alder
		Greenline stubble	5 in	4 in	Carex
		Bank Alteration	15%	20%	NA

Monitoring of annual use indicators will be conducted using the MIM protocol (Burton et al 2011) or other best available science. Monitoring locations identified in Table 2 are key areas, also referred to as DMAs. Each is a representative DMA, and as such is to be located in an area that is representative of streamside livestock use, reflecting typical use of riparian vegetation and streambanks (Burton et al 2011). The DMAs identified in Table 2 are representative of units that have ESA-listed fish and or designated critical habitat.

Key species are preferred by livestock and are an important component of a plant community, serving as an indicator of change (USDA and USDI 1999). Season-end annual use indicators will be monitored by SCNF personnel or a person authorized by the SCNF.

1.3.9. Conservation Measures

The following measures will be described and implemented as part of the term grazing permit(s) on the Allotment, to avoid and reduce potential impacts to designated critical habitat within the Allotment.

1. The SCNF will follow the Communication Plan—Implementing Livestock Grazing Consultation on the SCNF. Over the duration of this opinion the Communication Plan could be updated to better address livestock grazing management both within the FS and between the FS and NMFS. The desired outcome of this Communication Plan is to conduct livestock grazing within the scope of the BA and this opinion while being consistent and timely in communication when something is observed to the contrary.

2. Per the grazing system the on-date may vary so livestock will be placed on the Allotment at range readiness.

3. Livestock moves between Units or off the Allotment are made so as to meet the annual use indicators.

4. Permittees will continue to salt at least one-quarter mile away from all streams. This helps reduce the time livestock spend near aquatic habitat, designated critical habitat, and near potential spawning areas.

5. Permittees will continue to distribute livestock away from perennial streams and associated riparian areas by riding.

6. Permittees will maintain the improvements in accordance with the term grazing permit.

7. The Allotment will continue to be monitored using implementation and effectiveness monitoring and results of all monitoring will be provided to NMFS by March 1 of the following year.

8. Upland use will be monitored, as needed, in areas where streams with ESA-listed fish species and designated critical habitat are adjacent to steep slopes where there exists the potential for erosion effects caused by livestock to impact these streams.

1.3.10. Implementation (Annual) Monitoring

The monitoring protocol uses the MIM method (Burton et al 2011) or other best available published science. Implementation monitoring will be conducted at DMAs. Each DMA is to be located in an area that is representative of streamside livestock use, reflecting typical use of riparian vegetation and streambanks (Burton et al 2011).

The purpose of monitoring annual use indicators is to identify the relationship between this "allowed use" (Table 2) and attainment of the three riparian resource objectives directly affected by livestock grazing. Per the MIM method, timing of annual use monitoring is based on its purpose. Alteration monitoring is typically conducted within 2 weeks of livestock having been moved from a unit. Monitoring residual stubble height, as a protective cover for next spring's flows, is conducted by the end of the grazing season.

Annual use indicators will be monitored by SCNF personnel or a person trained and authorized by the SCNF.

1.3.11. Effectiveness (Long-term) Monitoring

Effectiveness monitoring for GES, woody regeneration and bank stability uses the MIM method (Burton et al. 2011) or other best available science. Effectiveness monitoring will be conducted a minimum of every 5 years. This monitoring also takes place at the DMAs in Table 2. Designated monitoring areas are areas representative of grazing use and reflecting what is happening in the overall riparian area as a result of livestock activity (Burton et al. 2011).

The monitoring protocol for the channel geometry is revised from a wetted width-to-depth (W:D) measurement (range monitoring prior to 2010) and a bankfull W:D metric (watershed monitoring 1993–2016) to the greenline-to-greenline width measurement as described in the MIM protocol.

Wetted width is highly dependent on when it is monitored, it varies with flow and is the width of the water on that date. Bankfull W:D on the other hand, is accepted as an important channel metric, helping managers understand the distribution of energy within a channel, and the ability of various flows to move sediment (Rosgen 1994).

Bankfull W:D informs channel type, and can vary by ±2 units without indicating a change in stream morphology or channel type (Rosgen 1994). Prior BAs presented bankfull W:D data collected at the SCNF sediment monitoring sites to determine Rosgen channel type (1992–2005). Measurement of channel dimensions and determination of Rosgen channel type began again at all sites in 2015 in order to verify previous channel types, correct previous channel type errors, and determine channel type for sites that do not have this information. Future collection of channel type data will not be needed at sites where recent existing channel type data exist and are known to be accurate. There are two further considerations of use of these bankfull W:D measures. One is that the SCNF sediment monitoring sites are not necessarily representative of livestock use, they were chosen to be low in the watersheds the SCNF manages, and each definitive exact location is where spawning habitat is present. Second is concern for the subjective nature of identifying bankfull elevations useful for stream classification but should be monumented for detecting change on a stream reach.

Early versions (2007 through 2009) of the MIM protocol contained a max water depth and max water width metric at DMAs. Results of this metric were sometimes presented in prior BAs. However in 2010, the MIM method dropped this, what is essentially a wetted W:D measurement. The remaining metric is greenline-to-greenline width; this is the non-vegetated distance between the greenline on each side of the stream. “It provides an indication of the width of the channel, reflecting disturbance of the streambanks and vegetation. As stream channel margins are disturbed by trampling or excessive vegetation consumption, streams may erode the streambanks, causing a lateral erosion of the streambank and streamside vegetation. This results in a shifting out, or widening of the distance between greenlines within the non-vegetated channel.” (Burton et al. 2011)

“The loss of vegetative integrity and breakdown of streambanks by livestock trampling may lead to bank erosion and subsequent channel widening (Rosgen 1996). Because vegetation is frequently related to bank stability, the non-vegetated width between greenlines is an excellent way to monitor this effect on the channel. As channels widen, water depth decreases with potential negative effects on aquatic habitat and water temperature.” (Burton et al. 2011).

Because greenline-to-greenline width is: (a) Sensitive to livestock use; (b) indicates trend when used with greenline composition and bank stability where a stream is over-widened; and (c) possess good repeatability, the SCNF is now tracking greenline-to-greenline width as a metric that indicates if there are underlying changes in channel dimensions.

1.3.12. Fish Habitat Monitoring

Stream sediment (depth fines) and water temperature will be monitored at established long-term monitoring sites using established protocols at least once every 5 years. The established long-term monitoring sites are not necessarily located at the DMAs. Frequency of monitoring varies depending on the trend indicated by monitoring results. At a minimum these two metrics will be monitored twice every 10 years.

1.3.13. Fish Population Monitoring

Fish population monitoring, which will include determining ESA-listed fish presence and density, will be conducted at long-term monitoring sites within the Allotment at least every 5 years.

1.3.14. Reporting

Results of monitoring identified above will be electronically emailed to the respective Regulatory Agency, or their offices, by March 1 each year. Results from the annual monitoring reports will be available at http://www.fs.usda.gov/detail/scnf/landmanagement/resourcemanagement/?cid=STELPRDB5308989.

2. ENDANGERED SPECIES ACT: BIOLOGICAL OPINION AND INCIDENTAL TAKE STATEMENT

The ESA establishes a national program for conserving threatened and endangered species of fish, wildlife, plants, and the habitat upon which they depend. As required by section 7(a)(2) of the ESA, each federal agency must ensure that its actions are not likely to jeopardize the continued existence of endangered or threatened species, or adversely modify or destroy their designated critical habitat. Per the requirements of the ESA, federal action agencies consult with NMFS and section 7(b)(3) requires that, at the conclusion of consultation, NMFS provide an opinion stating how the agency's actions would affect listed species and their critical habitats. If incidental take is reasonably certain to occur, section 7(b)(4) requires NMFS to provide an incidental take statement (ITS) that specifies the impact of any incidental taking and includes non-discretionary reasonable and prudent measures, and terms and conditions to minimize such impacts.

2.1. Analytical Approach

This opinion includes an adverse modification analysis, and relies on the definition of "destruction or adverse modification," which "means a direct or indirect alteration that appreciably diminishes the value of critical habitat as a whole for the conservation of a listed species" (50 CFR 402.02).

The designations of critical habitat for ESA-listed salmonids use the term primary constituent element (PCE) or essential features. The 2016 critical habitat regulations (50 CFR 424.12) replaced this term with physical or biological features (PBFs). The shift in terminology does not change the approach used in conducting a "destruction or adverse modification" analysis, which is the same regardless of whether the original designation identified PCEs, PBFs, or essential features. In this opinion, we use the term PBF to mean PCE or essential feature, as appropriate for the specific critical habitat.

The 2019 regulations define effects of the action using the term "consequences" (50 CFR 402.02). As explained in the preamble to the regulations (84 FR 44977), that definition does not change the scope of our analysis and in this opinion we use the terms "effects" and "consequences" interchangeably.

We use the following approach to determine whether a proposed action is likely to destroy or adversely modify critical habitat:

- Evaluate the rangewide status of the critical habitat expected to be adversely affected by the proposed action.

- Evaluate the environmental baseline of the critical habitat.

- Evaluate the effects of the proposed action on species habitats using an exposure-response approach.

- Evaluate cumulative effects.

- In the integration and synthesis, add the effects of the action and cumulative effects to the environmental baseline, and, in light of the status of the critical habitat, analyze whether the proposed action is likely to directly or indirectly result in an alteration that appreciably diminishes the value of critical habitat as a whole for the conservation of a listed species.

- If necessary, suggest a reasonable and prudent alternative to the proposed action.

2.2. Rangewide Status of Critical Habitat

This opinion examines the condition of critical habitat throughout the designated area, evaluates the conservation value of the various watersheds and coastal and marine environments that make up the designated area, and discusses the function of the PBFs that are essential for the conservation of the species.

The opinion also examines the condition of critical habitat throughout the designated area, evaluates the conservation value of the various watersheds and coastal and marine environments that make up the designated area, and discusses the function of the essential PBFs that help to form that conservation value. Table 3 describes the Federal Register notices and notice dates for the species under consideration in this opinion.

Table 3. Listing status, status of critical habitat designations and protective regulations and relevant Federal Register decision notices for ESA-listed species considered in this opinion.

Species	Listing Status	Critical Habitat	Protective Regulations
Chinook salmon *(Oncorhynchus tshawytscha)*			
Snake River spring/summer-run	T 6/28/05; 70 FR 37160	10/25/99; 64 FR 57399	6/28/05; 70 FR 37160

Note: Listing status: 'T' means listed as threatened under the ESA; 'E' means listed as endangered.

2.2.1. Status of Critical Habitat

In evaluating the condition of designated critical habitat, NMFS examines the condition and trends of PBFs which are essential to the conservation of the ESA-listed species because they support one or more life stages of the species. Proper function of these PBFs is necessary to support successful adult and juvenile migration, adult holding, spawning, incubation, rearing, and the growth and development of juvenile fish. Modification of PBFs may affect freshwater spawning, rearing or migration in the action area. Generally speaking, sites required to support one or more life stages of the ESA-listed species (i.e., sites for spawning, rearing, migration, and foraging) contain PBFs essential to the conservation of the listed species (e.g., spawning gravels, water quality and quantity, side channels, or food) (Table 4).

Table 4. Types and sites essential physical and biological features (PBFs) and the species life stage each PBF supports.

Site	Essential Physical and Biological Features	Species Life Stage
Snake River Spring/Summer Chinook		
Spawning & Juvenile Rearing	Spawning gravel, water quality and quantity, cover/shelter (Chinook only), food, riparian vegetation, space (Chinook only), water temperature and access (sockeye only)	Juvenile and adult
Migration	Substrate, water quality and quantity, water temperature, water velocity, cover/shelter, food[a], riparian vegetation, space, safe passage	Juvenile and adult

[a] Food applies to juvenile migration only.

Table 5 describes the geographical extent within the Snake River of critical habitat for Snake River spring/summer Chinook salmon. Critical habitat includes the stream channel and water column with the lateral extent defined by the ordinary high water line, or the bankfull elevation where the ordinary high water line is not defined. In addition, critical habitat includes the adjacent riparian zone, which is defined as the area within 300 feet of the line of high water of a stream channel or from the shoreline of standing body of water (58 FR 68543). The riparian zone is critical because it provides shade, streambank stability, organic matter input, and regulation of sediment, nutrients, and chemicals.

Table 5. Geographical extent of designated critical habitat within the Snake River for ESA-listed Chinook salmon.

Evolutionarily Significant Unit/ Distinct Population Segment	Designation	Geographical Extent of Critical Habitat
Snake River spring/summer Chinook salmon	58 FR 68543; December 28, 1993. 64 FR 57399; October 25, 1999.	All Snake River reaches upstream to Hells Canyon Dam; all river reaches presently or historically accessible to Snake River spring/summer Chinook salmon within the Salmon River basin; and all river reaches presently or historically accessible to Snake River spring/summer Chinook salmon within the Hells Canyon, Imnaha, Lower Grande Ronde, Upper Grande Ronde, Lower Snake–Asotin, Lower Snake–Tucannon, and Wallowa subbasins.

Spawning and rearing habitat quality in tributary streams in the Snake River varies from excellent in wilderness and roadless areas to poor in areas subject to intensive human land uses (NMFS 2015; NMFS 2017). Critical habitat throughout much of the Interior Columbia (which includes the Snake River and the Middle Columbia River) has been degraded by intensive agriculture, alteration of stream morphology (i.e., channel modifications and diking), riparian vegetation disturbance, wetland draining and conversion, livestock grazing, dredging, road construction and maintenance, logging, mining, and urbanization. Reduced summer streamflows, impaired water quality, and reduction of habitat complexity are common problems for critical habitat in non-wilderness areas. Human land use practices throughout the basin have caused streams to become straighter, wider, and shallower, thereby reducing rearing habitat and increasing water temperature fluctuations.

In many stream reaches designated as critical habitat in the Snake River basin, streamflows are substantially reduced by water diversions (NMFS 2015; NMFS 2017). Withdrawal of water, particularly during low flow periods that commonly overlap with agricultural withdrawals, often increases summer stream temperatures, blocks fish migration, strands fish, and alters sediment transport (Spence et al. 1996). Reduced tributary streamflow has been identified as a major limiting factor for Snake River spring/summer Chinook in particular (NMFS 2017).

Many stream reaches designated as critical habitat for this species are listed on the Clean Water Act 303(d) list for impaired water quality, such as elevated water temperature (IDEQ 2011). Many areas that were historically suitable rearing and spawning habitat are now unsuitable due to high summer stream temperatures, such as some stream reaches in the Upper Grande Ronde. Removal of riparian vegetation, alteration of natural stream morphology, and withdrawal of water for agricultural or municipal use all contribute to elevated stream temperatures. Water quality in spawning and rearing areas in the Snake River has also been impaired by high levels of sedimentation and by heavy metal contamination from mine waste (e.g., IDEQ and EPA 2003; IDEQ 2001).

The construction and operation of water storage and hydropower projects in the Columbia River basin, including the run-of-river dams on the mainstem lower Snake and lower Columbia Rivers, have altered biological and physical attributes of the mainstem migration corridor. These alterations have affected juvenile migrants to a much larger extent than adult migrants. However, changing temperature patterns have created passage challenges for summer migrating adults in recent years, requiring new structural and operational solutions (i.e., cold water pumps and exit "showers" for ladders at Lower Granite and Lower Monumental Dams). Actions taken since 1995 that have reduced negative effects of the hydrosystem on juvenile and adult migrants including:

- Minimizing winter drafts (for flood risk management and power generation) to increase flows during peak spring passage;
- Releasing water from storage to increase summer flows;
- Releasing water from Dworshak Dam to reduce peak summer temperatures in the lower Snake River;
- Constructing juvenile bypass systems to divert smolts, steelhead kelts, and adults that fall back over the projects away from turbine units;
- Providing spill at each of the mainstem dams for smolts, steelhead kelts, and adults that fall back over the projects;
- Constructing "surface passage" structures to improve passage for smolts, steelhead kelts, and adults falling back over the projects; and,
- Maintaining and improving adult fishway facilities to improve migration passage for adult salmon and steelhead.

Mineral exploration and mining were prevalent in the past but mining activity declined at the beginning of the 20th century. Livestock grazing is common in many of the subwatersheds in this population, and has led to sedimentation, bank instability, and loss of riparian vegetation. Gazing management has helped decrease the effects of cattle, and helped improve habitat conditions. However, the lasting impacts are still part of the limiting factors associated with depressed anadromous fish numbers. Increased water temperature and deposited fine sediment are the two main limiting factors in much of the habitat within the action areas streams.

2.2.2. Climate Change Implications for ESA-listed Species and their Critical Habitat

Climate change is affecting aquatic habitat and the rangewide status of Snake River spring/summer Chinook salmon and Snake River Basin steelhead. The U.S. Global Change Research Program reports average warming of about 1.3°F from 1895 to 2011, and projects an increase in average annual temperature of 3.3°F to 9.7°F by 2070 to 2099 (CCSP 2014). Climate change has negative implications for ESA listed anadromous fishes and their habitats in the Pacific Northwest (CIG 2004; Scheuerell and Williams 2005; Zabel et al. 2006; ISAB 2007). According to the Independent Science Advisory Board (ISAB), these effects will cause the following:

- Warmer air temperatures will result in diminished snowpack and a shift to more winter/spring rain and runoff, rather than snow that is stored until the spring/summer melt season;
- With a smaller snowpack, watersheds will see their runoff diminished earlier in the season, resulting in lower flows in the June through September period, while more precipitation falling as rain rather than snow will cause higher flows in winter, and possibly higher peak flows; and,
- Water temperatures are expected to rise, especially during the summer months when lower flows co-occur with warmer air temperatures.

These changes will not be spatially homogeneous across the entire Pacific Northwest. Low-lying areas are likely to be more affected. Climate change may have long-term effects that include, but are not limited to, depletion of important cold water habitat, variation in quality and quantity of tributary rearing habitat, alterations to migration patterns, accelerated embryo development, premature emergence of fry, and increased competition among species.

Climate change is predicted to cause a variety of impacts to Pacific salmon (including steelhead) and their ecosystems (Mote et al. 2003; Crozier et al. 2008a; Martins et al. 2012; Wainwright and Weitkamp 2013). The complex life cycles of anadromous fishes, including salmon, rely on productive freshwater, estuarine, and marine habitats for growth and survival, making them particularly vulnerable to environmental variation. Ultimately, the effects of climate change on salmon and steelhead across the Pacific Northwest will be determined by the specific nature, level, and rate of change and the synergy between interconnected terrestrial/freshwater, estuarine, nearshore, and ocean environments.

The primary effects of climate change on Pacific Northwest salmon and steelhead include:

- Direct effects of increased water temperatures on fish physiology;
- Temperature-induced changes to streamflow patterns;
- Alterations to freshwater, estuarine, and marine food webs; and,
- Changes in estuarine and ocean productivity.

While all habitats used by Pacific salmon will be affected, the impacts and certainty of the change vary by habitat type. Some effects (e.g., increasing temperature) affect salmon at all life stages in all habitats, while others are habitat specific, such as streamflow variation in freshwater, sea-level rise in estuaries, and upwelling in the ocean. How climate change will affect each stock or population of salmon also varies widely depending on the level or extent of change, the rate of change, and the unique life history characteristics of different natural populations (Crozier et al. 2008b). For example, a few weeks' difference in migration timing can have large differences in the thermal regime experienced by migrating fish (Martins et al. 2011).

Temperature Effects. Like most fishes, salmon are poikilotherms (cold-blooded animals); therefore, increasing temperatures in all habitats can have pronounced effects on their physiology, growth, and development rates (see review by Whitney et al. 2016). Increases in water temperatures beyond their thermal optima will likely be detrimental through a variety of processes, including increased metabolic rates (and therefore food demand), decreased disease resistance, increased physiological stress, and reduced reproductive success. All of these processes are likely to reduce survival (Beechie et al. 2013; Wainwright and Weitkamp 2013; Whitney et al. 2016).

By contrast, increased temperatures at ranges well below thermal optima (i.e., when the water is cold) can increase growth and development rates. Examples of this include accelerated emergence timing during egg incubation stages, or increased growth rates during fry stages (Crozier et al. 2008a; Martins et al. 2011). Temperature is also an important behavioral cue for migration (Sykes et al. 2009), and elevated temperatures may result in earlier-than-normal migration timing. While there are situations or stocks where this acceleration in processes or behaviors is beneficial, there are also others where it is detrimental (Martins et al. 2012; Whitney et al. 2016).

Freshwater Effects. Climate change is predicted to increase the intensity of storms, reduce winter snow pack at low and middle elevations, and increase snowpack at high elevations in northern areas. Middle and lower elevation streams will have larger fall/winter flood events and lower late-summer flows, while higher elevations may have higher minimum flows. How these changes will affect freshwater ecosystems largely depends on their specific characteristics and location, which vary at fine spatial scales (Crozier et al. 2008b; Martins et al. 2012). For example, within a relatively small geographic area (the Salmon River basin in Idaho), survival of some Chinook salmon populations was shown to be determined largely by temperature, while in others it was determined by flow (Crozier and Zabel 2006). Certain salmon populations inhabiting regions that are already near or exceeding thermal maxima will be most affected by further increases in temperature and, perhaps, the rate of the increases. The effects of altered flow are less clear and likely to be basin-specific (Crozier et al. 2008b; Beechie et al. 2013). However, flow is already becoming more variable in many rivers, and this increased variability is believed to negatively affect anadromous fish survival more than other environmental parameters (Ward et al. 2015). It is likely this increasingly variable flow is detrimental to multiple salmon and steelhead populations, and also to other freshwater fish species in the Columbia River basin.

Stream ecosystems will likely change in response to climate change in ways that are difficult to predict (Lynch et al. 2016). Changes in stream temperature and flow regimes will likely lead to shifts in the distributions of native species and provide "invasion opportunities" for exotic species. This will result in novel species interactions, including predator-prey dynamics, where juvenile native species may be either predators or prey (Lynch et al. 2016; Rehage and Blanchard 2016). How juvenile native species will fare as part of "hybrid food webs," which are constructed from natives, native invaders, and exotic species, is difficult to predict (Naiman et al. 2012).

Estuarine Effects. In estuarine environments, the two big concerns associated with climate change are rates of sea-level rise and water temperature warming (Wainwright and Weitkamp 2013; Limburg et al. 2016). Estuaries will be affected directly by sea-level rise: as sea level rises, terrestrial habitats will be flooded and tidal wetlands will be submerged (Kirwan et al. 2010; Wainwright and Weitkamp 2013; Limburg et al. 2016). The net effect on wetland habitats depends on whether rates of sea-level rise are sufficiently slow that the rates of marsh plant growth and sedimentation can compensate (Kirwan et al. 2010).

Due to subsidence, sea-level rise will affect some areas more than others, with the largest effects expected for the lowlands, like southern Vancouver Island and central Washington coastal areas (Verdonck 2006; Lemmen et al. 2016). The widespread presence of dikes in Pacific Northwest estuaries will restrict upward estuary expansion as sea levels rise, likely resulting in a near-term loss of wetland habitats (Wainwright and Weitkamp 2013). Sea-level rise will also result in greater intrusion of marine water into estuaries, resulting in an overall increase in salinity, which will also contribute to changes in estuarine floral and faunal communities (Kennedy 1990). While not all anadromous fish species are highly reliant on estuaries for rearing, extended estuarine use may be important in some populations (Jones et al. 2014), especially if stream habitats are degraded and become less productive. Preliminary data indicate that some Snake River Basin steelhead smolts actively feed and grow as they migrate between Bonneville Dam and the ocean (Beckman 2018), suggesting that estuarine habitat is important for this distinct population segment.

Marine Effects. In marine waters, increasing temperatures are associated with observed and predicted poleward range expansions of fish and invertebrates in both the Atlantic and Pacific Oceans (Lucey and Nye 2010; Asch 2015; Cheung et al. 2015). Rapid poleward species shifts in distribution in response to anomalously warm ocean temperatures have been well documented in recent years, confirming this expectation at short time scales. Range extensions were documented in many species from southern California to Alaska during unusually warm water associated with "the blob" in 2014 and 2015 (Bond et al. 2015; Di Lorenzo and Mantua 2016) and past strong El Niño events (Pearcy 2002; Fisher et al. 2015). For example, recruitment of the introduced European green crab (*Carcinus maenas*) increased in Washington and Oregon waters during winters with warm surface waters, including 2014 (Yamada et al. 2015). Similarly, the Humboldt squid (*Dosidicus gigas*) dramatically expanded its range northward during warm years of 2004–09 (Litz et al. 2011). The frequency of extreme conditions, such as those associated with El Niño events or "blobs" is predicted to increase in the future (Di Lorenzo and Mantua 2016), further altering food webs and ecosystems.

Expected changes to marine ecosystems due to increased temperature, altered productivity, or acidification will have large ecological implications through mismatches of co-evolved species and unpredictable trophic effects (Cheung et al. 2015; Rehage and Blanchard 2016). These effects will certainly occur, but predicting the composition or outcomes of future trophic interactions is not possible with current models.

Wind-driven upwelling is responsible for the extremely high productivity in the California Current ecosystem (Bograd et al. 2009; Peterson et al. 2014). Minor changes to the timing, intensity, or duration of upwelling, or the depth of water-column stratification, can have dramatic effects on the productivity of the ecosystem (Black et al. 2015; Peterson et al. 2014). Current projections for changes to upwelling are mixed: some climate models show upwelling unchanged, but others predict that upwelling will be delayed in spring, and more intense during summer (Rykaczewski et al. 2015). Should the timing and intensity of upwelling change in the future, it may result in a mismatch between the onset of spring ecosystem productivity and the timing of salmon entering the ocean, and a shift toward food webs with a strong sub-tropical component (Bakun et al. 2015).

Columbia River anadromous fishes also use coastal areas of British Columbia and Alaska and midocean marine habitats in the Gulf of Alaska, although their fine-scale distribution and marine ecology during this period are poorly understood (Morris et al. 2007; Pearcy and McKinnell 2007). Increases in temperature in Alaskan marine waters have generally been associated with increases in productivity and salmon survival (Mantua et al. 1997; Martins et al. 2012), thought to result from temperatures that are normally below thermal optima (Gargett 1997). Warm ocean temperatures in the Gulf of Alaska are also associated with intensified downwelling and increased coastal stratification, which may result in increased food availability to juvenile salmon along the coast (Hollowed et al. 2009; Martins et al. 2012). Predicted increases in freshwater discharge in British Columbia and Alaska may influence coastal current patterns (Foreman et al. 2014), but the effects on coastal ecosystems are poorly understood.

In addition to becoming warmer, the world's oceans are becoming more acidic as increased atmospheric carbon dioxide is absorbed by water. The North Pacific is already acidic compared to other oceans, making it particularly susceptible to further increases in acidification (Lemmen et al. 2016). Laboratory and field studies of ocean acidification show that it has the greatest effects on invertebrates with calcium-carbonate shells, and has relatively little direct influence on finfish; see reviews by Haigh et al. (2015) and Mathis et al. (2015). Consequently, the largest impact of ocean acidification on salmon will likely be the influence on marine food webs, especially the effects on lower trophic levels (Haigh et al. 2015; Mathis et al. 2015). Marine invertebrates fill a critical gap between freshwater prey and larval and juvenile marine fishes, supporting juvenile salmon growth during the important early-ocean residence period (Daly et al. 2009, 2014).

Uncertainty in Climate Predictions. There is considerable uncertainty in the predicted effects of climate change on the globe as a whole, and on the Pacific Northwest in particular. Many of the effects of climate change (e.g., increased temperature, altered flow, coastal productivity, etc.) will have direct impacts on the food webs that species rely on in freshwater, estuarine, and marine habitats to grow and survive. Such ecological effects are extremely difficult to predict even in fairly simple systems, and minor differences in life-history characteristics among stocks of salmon may lead to large differences in their response (e.g., Crozier et al. 2008b; Martins et al. 2011, 2012). This means it is likely that there will be "winners and losers," meaning some salmon populations may enjoy different degrees or levels of benefit from climate change while others will suffer varying levels of harm. Climate change is expected to impact anadromous fishes during all stages of their complex life cycle. In addition to the direct effects of rising temperatures, indirect effects include alterations in flow patterns in freshwater and changes to food webs in freshwater, estuarine, and marine habitats. There is high certainty that predicted physical and chemical changes will occur; however, the ability to predict bio-ecological changes to fish or food webs in response to these physical/chemical changes is extremely limited, leading to considerable uncertainty. In additional to physical and biological effects, there is also the question of indirect effects of climate change and whether human "climate refugees" will move into the range of salmon and steelhead, increasing stresses on their respective habitats (Dalton et al. 2013; Poesch et al. 2016).

Summary. Climate change is expected to impact Pacific Northwest anadromous fishes during all stages of their complex life cycle. In addition to the direct effects of rising temperatures, indirect effects include alterations in stream-flow patterns in freshwater and changes to food webs in freshwater, estuarine, and marine habitats. There is high certainty that predicted physical and chemical changes will occur; however, the ability to predict bio-ecological changes to fish or food webs in response to these physical/chemical changes is extremely limited, leading to considerable uncertainty. As we continue to deal with a changing climate, management actions may help alleviate some of the potential adverse effects (e.g., hatcheries serving as a genetic reserve and source of abundance for natural populations, increased riparian vegetation to control water temperatures, etc.)

Climate change is expected to make recovery targets for Chinook salmon and steelhead populations more difficult to achieve. Climate change is expected to alter critical habitat by generally increasing temperature and peak flows and decreasing base flows. Although changes will not be spatially homogenous, effects of climate change are expected to decrease the capacity of critical habitat to support successful spawning, rearing, and migration. Habitat action can address the adverse impacts of climate change on Chinook salmon and steelhead. Examples include restoring connections to historical floodplains and freshwater and estuarine habitats to provide fish refugia and areas to store excess floodwaters, protecting and restoring riparian vegetation to ameliorate stream temperature increases, and purchasing or applying easements to lands that provide important cold water habitat and cold water refugia (Battin et al. 2007; ISAB 2007).

The proposed action will therefore likely occur while climate change-related effects are expected to become more evident within the range of the Snake River spring/summer Chinook salmon ESU. The grazing permit for this Allotment will run through the end of 2034. Climate change predicts warmer drier climates in much of the Northwest. One of the limiting factors in action area streams is water temperature. Restricting cattle use of riparian areas will help minimize the effects cattle have on the shade cover of streams, which will help minimize the effects on water temperature. However, it is assumed that streams will continue to increase in temperature with climate change in the future, which will hinder the recovery of anadromous fish in the action area streams.

2.3. Action Area

"Action area" means all areas to be affected directly or indirectly by the federal action and not merely the immediate area involved in the action (50 CFR 402.02).

The Allotment is located within the Hawley Creek 5th-field HUC (1706020402), on the Leadore Ranger District of the SCNF. This location is approximately 7 air miles east of Leadore, Idaho, on NFS lands (Figure 1). This Allotment contains 30,681 acres of National Forest System lands; also, there are two fenced private in holdings (approximately 260 acres).

For purposes of this consultation the action area includes all lands and streams within the Allotment boundary (Figure 2). The action area is not currently occupied by anadromous salmonids because it is disconnected from the Lemhi River due to irrigation withdrawals and other human-caused physical migration barriers.

2.4. Environmental Baseline

The "environmental baseline" refers to the condition of the listed species or its designated critical habitat in the action area, without the consequences to the listed species or designated critical habitat caused by the proposed action. The environmental baseline includes the past and present impacts of all federal, state, or private actions and other human activities in the action area, the anticipated impacts of all proposed federal projects in the action area that have already undergone formal or early section 7 consultations, and the impact of state or private actions which are contemporaneous with the consultation in process. The consequences to listed species or designated critical habitat from ongoing agency activities or existing agency facilities that are not within the agency's discretion to modify are part of the environmental baseline (50 CFR 402.02).

Hawley Creek is the only stream within the action area that has designated critical habitat for Chinook salmon. Hawley Creek is formed when Reservoir Creek and Big Bear Creek merge. There are three long-term sediment monitoring sites within Hawley, Reservoir, and Big Bear Creeks. Water temperature has also been measured within these three streams. Hawley Creek does not have a DMA site. Because of this, the DMA sites on Reservoir and Big Bear Creeks were used, along with the sediment and temperature sites listed above, to assess the baseline condition. For reasons explained above, the only streams that will be discussed are Hawley, Reservoir, and Big Bear Creeks.

Fish habitat conditions in Hawley Creek, within the action area, are generally in fair to good condition. Overall physical habitat quality, including the elements of water quality, flow and hydrology, channel conditions and structural habitat elements, is considered fair to good. There are some connectivity problems associated with private land irrigation practices in Hawley Creek within and below the action area. There is one culvert road crossing on Hawley Creek within the action area. This culvert is considered a partial migration barrier to fish passage during some flows in some years, most likely during very high flows or very low flows. Anadromous fish are absent from the action area due to in part because of public and private land migration barriers, unscreened diversions associated with irrigation practices, dewatering and disconnecting Hawley Creek with the Lemhi River, and warmer waters associated with low stream flows in Hawley Creek.

Fish habitat conditions in Reservoir Creek, within the action area, are generally in fair to good condition. Overall physical habitat quality, including the elements of water quality, flow and hydrology, channel conditions and structural habitat elements, is considered fair to good. However, water temperature exceeds PACFISH thresholds in some years. There is a dispersed recreation site approximately 0.1 miles upstream from the confluence with Hawley Creek and Reservoir Creek that has impacts to less than 328 feet of riparian vegetation and streambanks along Reservoir Creek. This dispersed recreation site receives heavy use in the fall during hunting season. Along with their camps, at times, hunters will also have horses in a homemade temporary corral adjacent to the stream.

Fish habitat conditions in Big Bear Creek, within the action area, are generally in fair to good condition. Overall physical habitat quality, including the elements of water quality, flow and hydrology, channel conditions and structural habitat elements, is considered fair to good.

There are three long-term trend sediment monitoring sites, within the action area, that were started in 1993 and continue to be periodically surveyed by the SCNF's Watershed Program. Hawley Creek has one site that has been monitored 21 out of the last 27 years (Figure 4). Fourteen of the 21 years, or 67% of the time, stream sediment has been "Properly Functioning." Five of the 21 years, or 24% of the time, stream sediment has been "Functioning at Risk." Two of the 21 years, or 9% of the time, stream sediment has been "Not Properly Functioning." These data indicate stream sediment over the years can be a limiting factor for ESA-listed fish production. Sediment monitoring in Hawley Creek since 1993 indicates a slight increasing trend in percent fines by depth. However, since 2010 sediment monitoring in Hawley Creek indicates a steeper increasing trend in percent fines by depth. A large part of the high sediment loads in Hawley Creek can be attributed to the roads that parallels Hawley Creek. These roads are within the PACFISH RHCA. There are also multiple ford crossing on roads throughout the Hawley Creek watershed. The geology of the upland slopes adjacent to Hawley Creek are Sedimentary–High Erosion Hazards and Sedimentary–Moderate Erosion Hazards. The high sediment loads in Hawley Creek could also be in part due to the surrounding and upstream geology, steep slopes, and natural erosion associated with spring runoff and high intensity storms.

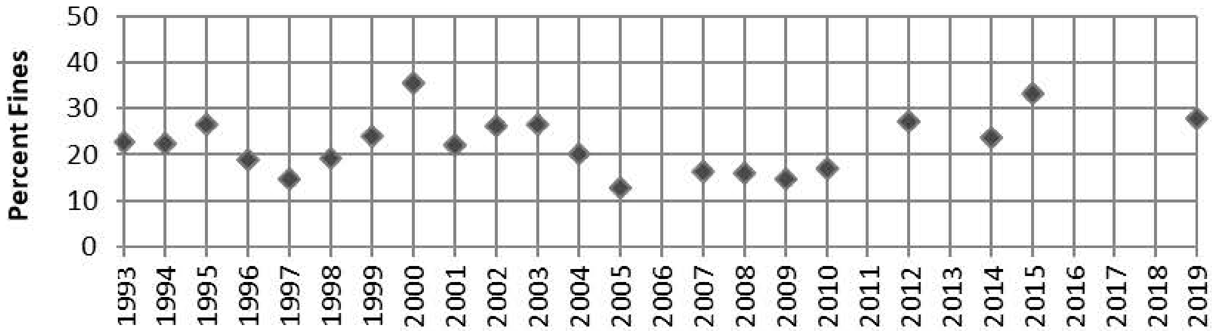

Figure 4. Percent fines at depth in Hawley Creek.

Big Bear Creek has one site that has been monitored 23 out of the last 27 years (Figure 5). Nine of the 23 years, or 39% of the time stream, sediment has been "Properly Functioning." Five of the 23 years, or 22% of the time, stream sediment has been "Functioning at Risk." Nine of the 23 years, or 39% of the time, stream sediment has been "Not Properly Functioning." These data indicate stream sediment over the years can be a limiting factor for ESA-listed fish production. Sediment monitoring in Big Bear Creek since 1993 indicates a decreasing trend in percent fines by depth. However, since 2010 sediment monitoring in Big Bear Creek indicates an increasing trend in percent fines by depth. A large part of the high sediment loads in Big Bear Creek can be attributed to the roads that parallel the streams within the PACFISH RHCA as well as the multiple ford crossings in Big Bear Creek and its tributary streams. Also the geology of the upland slopes adjacent to Big Bear Creek are: Volcanic (High Erosion Hazards), Sedimentary–High Erosion Hazards, Sedimentary–Moderate Erosion Hazards. The high sediment loads in Big Bear Creek could also be in part due to the surrounding geology, steep slopes and natural erosion associated with spring runoff and high intensity storms. Big Bear Creek stream sediment is currently "Not Properly Functioning" based on the last 10 years average of seven readings being 30.4%.

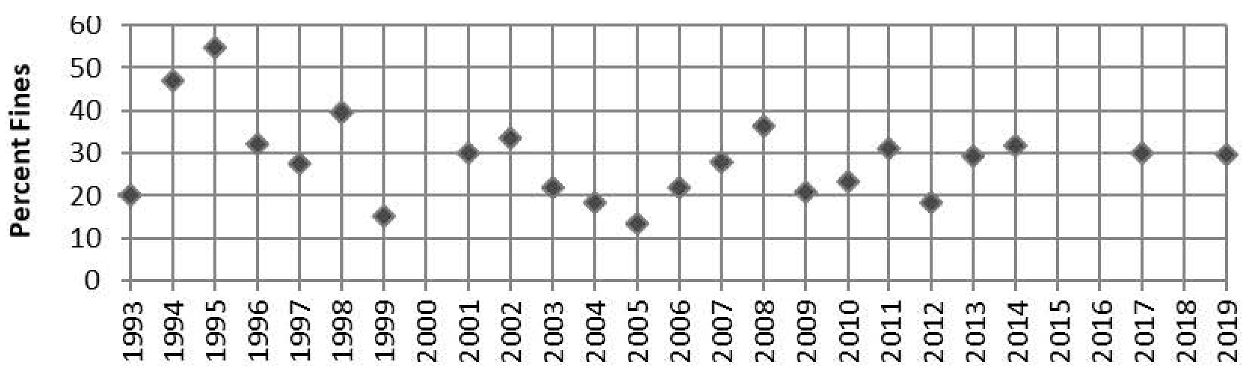

Figure 5. Percent fines at depth for Big Bear Creek.

Reservoir Creek has one site that has been monitored 20 out of the last 27 years (Figure 6). Eight of the 20 years, or 40% of the time, stream sediment has been "Properly Functioning." Two of the 20 years, or 10% of the time, stream sediment has been "Functioning at Risk." Ten of the 20 years, or 50% of the time, stream sediment has been "Not Properly Functioning." These data indicate stream sediment over the years can be a limiting factor for ESA-listed fish production in Reservoir Creek. Sediment monitoring in Reservoir Creek since 1993 indicates a decreasing trend in percent fines by depth. However, since 2010, sediment monitoring in Reservoir Creek indicates an increasing trend in percent fines by depth. A large part of the high sediment loads in Reservoir Creek can be attributed to the road that parallels the stream within the PACFISH RHCA. Also the geology of the upland slopes adjacent to Reservoir Creek are: Volcanic–High Erosion Hazards, Volcanic–Moderate Erosion Hazards, and Sedimentary–Moderate Erosion Hazards. The high sediment loads in Reservoir Creek could also be in part due to the surrounding geology, steep slopes, and natural erosion associated with spring runoff and high intensity storms.

Data have been collected at MIM sites within the action areas since 2009, depending on the MIM site. Many of the RMOs are being met and/or showing an upward trend. However, some are still below SCNF Resource Objectives, particularly the GES on Reservoir Creek (Table 6).

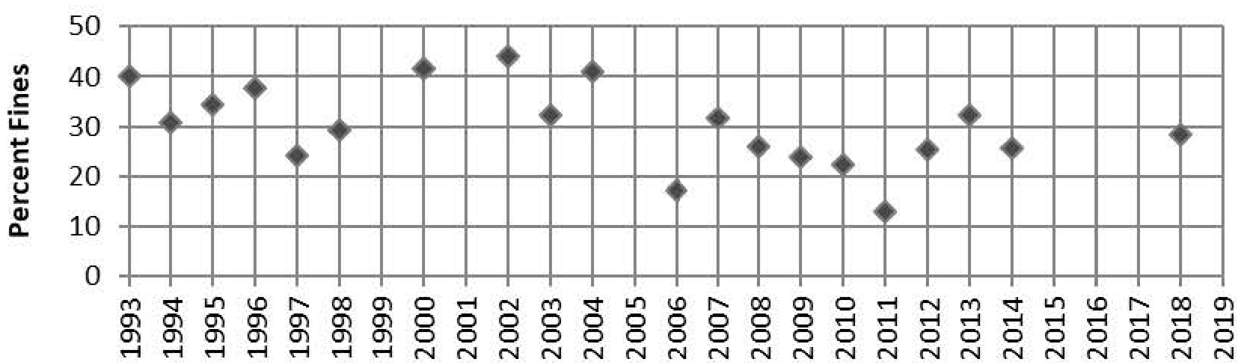

Figure 6. Percent fines at depth in Reservoir Creek.

Table 6. Multiple indicator monitoring (MIM) summary for Hawley, Big Bear, and Reservoir Creeks.

Hawley Creek Greenline Summary									
Unit	**Stream Name**	**Site #**	**Year**	**Greenline-to-Greenline width**	**Bank Stability**	**Woody Species Regeneration**		**Greenline Ecological Status (GES)**	**GES Trend**
						Seedling Young (#%)	**Mature/Dead (#%)**		
Stove Creek	Reservoir Creek	M302	2009	2.61	95%	10	20	MS/53	1st MIM Reading
			2010*		NA	NA	NA	PNC/80	New Site
			2013	1.9	84%	24	8	ES/40	Down
			2018	3.07	94%	6	1	LS/62	Up
Big Bear	Big Bear Creek	M276	2008**		76%	20	53	LS/72	Static
			2016	1.25	81%	16	44	LS/83	1st MIM Reading
Fish Pasture	Big Bear Creek	M304	2009		78%	20	43	LS/85	1st MIM Reading
			2014	1.62	98%	22	25	PNC/100	Up
			2019	1.46	100%	17	9	LS/75	Down

Hawley Creek Greenline Summary									
Unit	**Stream Name**	**Site #**	**Year**	**Greenline-to-Greenline width**	**Bank Stability**	**Woody Species Regeneration**		**Greenline Ecological Status (GES)**	**GES Trend**
						Seedling Young (#%)	**Mature/Dead (#%)**		
Lower Ranch	Reservoir Creek	M303	2010	1.99	87%	21	22	MS/50	1st MIM Reading
			2013	1.65	79%	23	10	VES14	Down
			2018	3.15	99%	33	10	MS/41	Up
Little Bear	Little Bear Creek	M289	2007**		100%	3	3	PNC/94	Static
			2016	0.76	99%	28	28	PNC/100	1st MIM Reading

*MIM site M302 was moved in 2010 to a more appropriate site away from the fence line.
**Non-MIM site.
GES: 0–15 very early seral; 16–40 Early Seral; 41–60 Mid-Seral; 61–85 Late Seral; 86+ Potential Natural Community (PNC).

Water temperature has been recorded in Hawley, Reservoir, and Big Bear Creeks since 2010. Hawley (Figure 7) and Big Bear (Figure 9) Creeks are both meeting PACFISH standards for maximum temperature. Reservoir Creek exceeded the 64ºF (17.8º C) maximum from 2012–2016, and the temperature has not been recorded since 2016 (Figure 8). Using the most recent data. Reservoir Creek is not meeting the PACFICH temperature RMO.

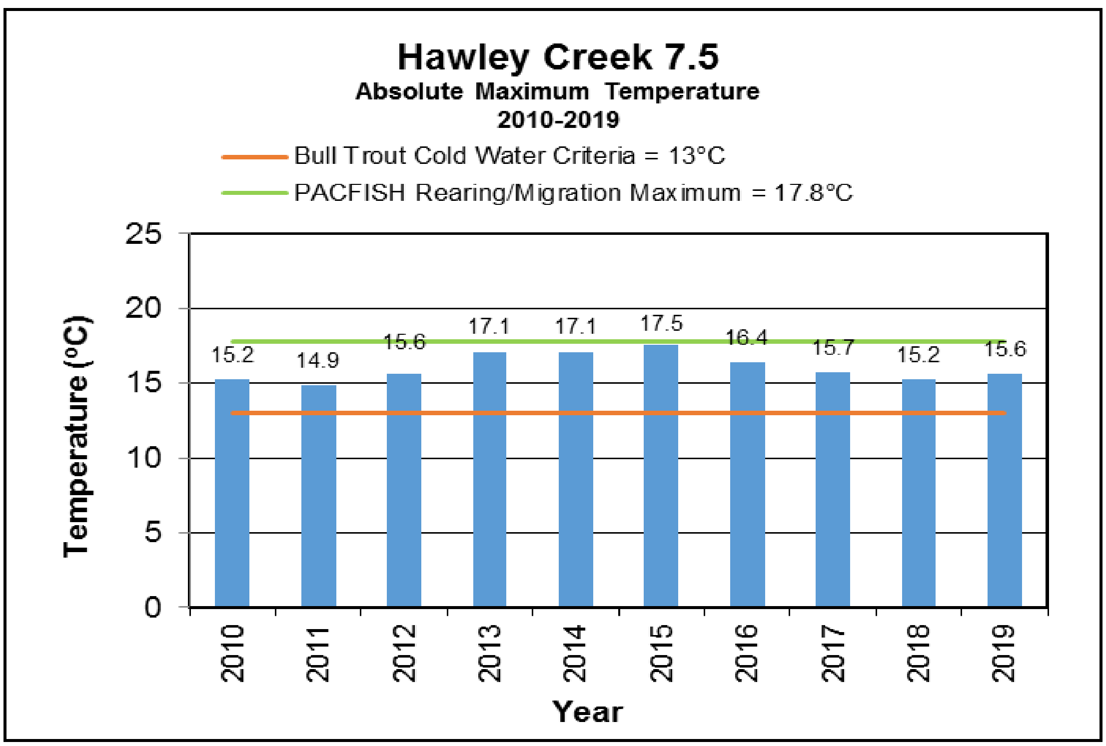

Figure 7. Hawley Creek water temperature from 2010–2019. The green line is the 64ºF PACFISH threshold.

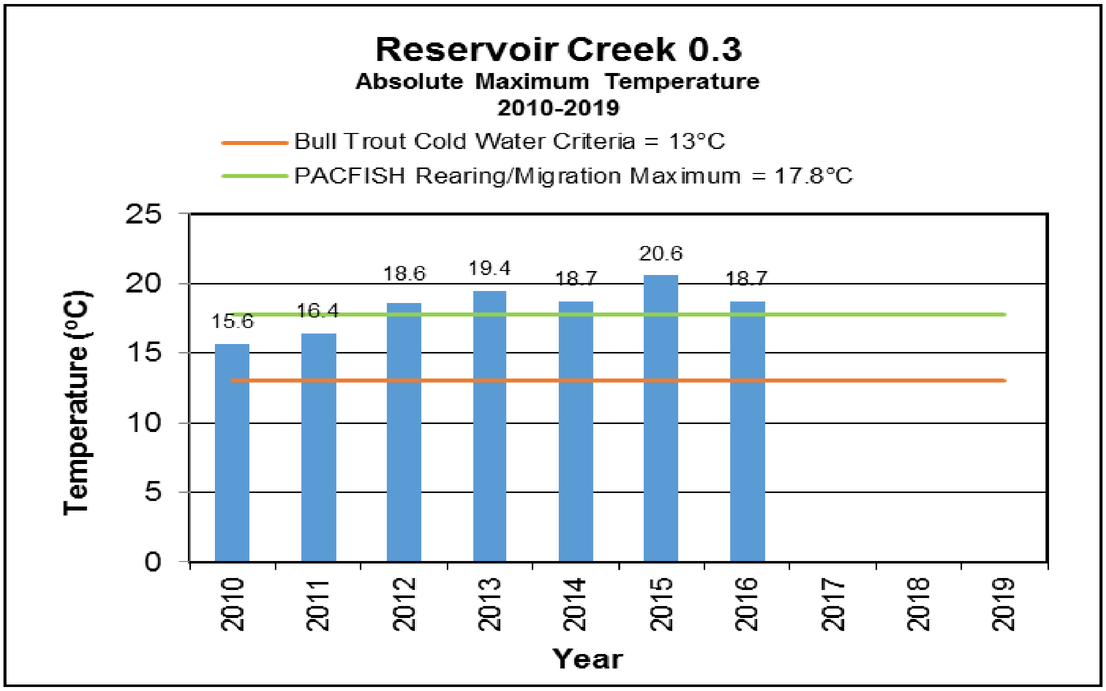

Figure 8. Reservoir Creek water temperature from 2010–2016. The green line is the 64ºF PACFISH threshold.

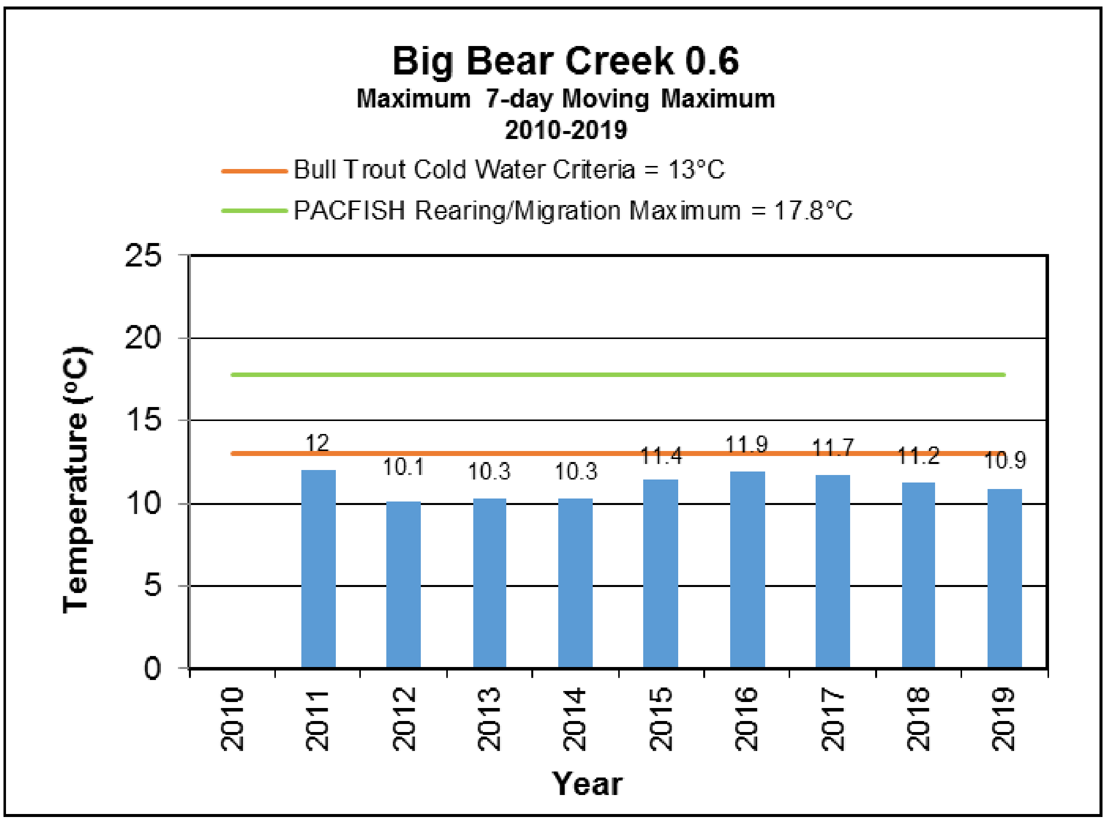

Figure 9. Water Temperatures in Big Bear Creek from 2011–2019. The greenline is the 64ºF PACFISH threshold.

The baseline habitat conditions within the Allotment are not meeting RMOs in some instances. The sediment levels (percent fines at depth) exceed the PACFISH standards in Hawley, Reservoir, and Big Bear Creeks. The temperature in Reservoir Creek exceed the maximum 64ºF in some years. Habitat conditions appear to be on an upward trend but are not meeting RMOs.

2.5. Effects of the Action

Under the ESA, "effects of the action" are all consequences to listed species or critical habitat that are caused by the proposed action, including the consequences of other activities that are caused by the proposed action. A consequence is caused by the proposed action if it would not occur but for the proposed action and it is reasonably certain to occur. Effects of the action may occur later in time and may include consequences occurring outside the immediate area involved in the action (see 50 CFR 402.17). In our analysis, which describes the effects of the proposed action, we considered 50 CFR 402.17(a) and (b).

2.5.1. Effects on Critical Habitat

The Allotment contains seven different Units. The SCNF has identified Hawley Creek as unoccupied critical habitat for Chinook salmon. This reach of Hawley Creek is entirely within the Lower Ranch Unit. For this reason this analysis will focus on Hawley, Reservoir, and Big Bear Creeks as they are the only streams within the Lower Ranch Unit.

Critical habitat within the action area has an associated combination of PBFs essential for supporting freshwater rearing, migration, and spawning Chinook salmon. The critical habitat elements potentially affected by the proposed action include riparian vegetation, water quality (temperature and turbidity), substrate, cover/shelter, and food.

If not properly managed, livestock grazing can affect designated critical habitat in a variety of ways. Numerous symposia and publications have documented the detrimental effects of livestock grazing on stream and riparian habitats (Menke 1977; Meehan and Platts 1978; Cope 1979; American Fisheries Society 1980; Platts 1981; Peek and Dalke 1982; Ohmart and Anderson 1982; Kauffman and Krueger 1984; Clary and Webster 1989; Gresswell et al. 1989; Kinch 1989; Chaney et al. 1990; Belsky et al. 1997). These publications describe a series of effects that can occur when cattle over-graze riparian areas, including: (1) Woody and hydric herbaceous vegetation along a stream can be reduced or eliminated; (2) streambanks can collapse due to livestock trampling; (3) without vegetation to slow water velocities, hold the soil, and retain moisture, erosion of streambanks can result; (4) the stream can become wider and shallower, and in some cases downcut; (5) the water table can drop; and (6) hydric, deeply rooted herbaceous vegetation can die out and be replaced by upland species with shallower roots and less ability to bind the soil. The resulting instability in water volume, increased summer water temperature, loss of pools, Loss of habitat adjacent to and connected to streambanks, increased substrate fine sediment, and cobble-embeddedness can adversely affect salmon and their habitat.

However, when grazing activities are well-managed, stream and riparian impacts can be greatly reduced, and recovery can occur over time. The focus of the proposed action is to meet the SCNF's multiple use mission, in this case providing cattle forage, while maintaining proper functioning ecologic conditions, or improving conditions which are currently at risk. This is consistent with the intent of PACFISH (USDA, Forest Service 1995) and NMFS 1995 and 1998 consultations on PACFISH. The proposed action, including established pasture rotations, range improvements, in-season move triggers, annual utilization standards, and an adaptive management strategy have been established specifically for the Allotment with the intent that PACFISH standards and objectives will be met and the above described potential adverse effects to critical habitat will be avoided.

Move Triggers/Endpoint Indicators. The SCNF has developed a suite of environmental monitoring indicators and proposed use standards that will require permittees to move cattle based on the most sensitive indicator for that year to protect critical steam habitats. This is important as annual variability in precipitation and air temperature can cause wide discrepancies in forage availability and thus annual livestock foraging habits. This process is expected to prevent substantial negative riparian impacts from occurring. It should maintain current conditions where "Functioning Appropriately", and allow indicators that are "Functioning at Risk" to recover. The sites where indicators are "Functioning at Risk" will likely take longer to recover with the presence of livestock grazing than without.

The SCNF will monitor the stubble height of grasses, sedges and rushes, and streambank alteration levels to determine when cattle should be moved from individual Units (Table 2). Stubble height has a direct relationship to the health of herbaceous riparian plants and the ability of the vegetation to provide streambank protection; to filter out and trap sediment from overbank flows; and in small streams to provide overhead cover (University of Idaho Stubble Height Review Team 2004; Roper 2016; Saunders and Fausch 2009). On monitoring sites across 17 National Forest and four BLM units in the Interior Columbia River basin, Goss (2013) found a linear relationship between increasing stubble height and multiple components of high quality salmonid habitat: increasing residual pool depth, increasing streambank stability, increasing percent undercut banks, and decreasing streambank angle. This suggests that across stream and riparian conditions evaluated within the Interior Columbia River basin, the higher the stubble height the greater the likelihood stream conditions favored by salmonids will be present (Goss 2013).

Multiple studies have evaluated minimum stubble heights necessary to protect stream habitat from the impacts of livestock grazing. Most studies have reported stubble height of the entire greenline graminoid and herbaceous community—as opposed to a subset of key plant species—because it is simpler to evaluate, avoids controversy over which species to monitor, and is likely more informative of actual streambank conditions than knowing the height of a subset of plant species (Roper 2016). Using the PACFISH–INFISH opinion monitoring data from federal lands in the Columbia basin, Goss (2013) found that stubble height was related to streambank disturbance, and streambank disturbance began to increase substantially when stubble heights fell below 10 inches. Bengeyfield (2006) found that a 4-inch stubble height did not initiate an upward trend in stream channel morphology at sites on the Beaverhead–Deerlodge National Forest in Montana, based on 7 to 9 years of monitoring. Clary (1999) found that while 5-inch stubble height at the end of the growing season resulted in improvements in most measured aquatic and riparian conditions in an Idaho meadow after 10 years, 6.5-inch stubble height was needed to improve all measured habitat metrics. Pelster et al. (2004) found that during summer and fall grazing greater than 40% of cattle diets were willow when stubble heights were less than

8 inches; they suggested that stubble heights greater than 8 inches were needed to reduce willow consumption during these critical periods. Willows enhance salmonid habitat by providing fish with cover, modulating stream temperatures, and contributing leaf detritus and terrestrial insects that expand food sources (Bryant et al. 2006; Clary and Leininger 2000; Murphy and Meehan 1991). This reinforces the idea that higher stubble heights lead to improved fish habitat.

After reviewing the available scientific literature, including all of the studies mentioned above, Roper (2016) strongly recommended 6 inches as a starting point for a stubble height objective, measured at the end of the growing season, for small to medium-sized cold water streams inhabited by salmon and trout. This is consistent with Clary and Webster (1989), who suggested a 6-inch starting point for stubble height objectives in the presence of ESA-listed or sensitive fish. Roper (2016) acknowledges that 4 inches or 8 inches could be appropriate stubble height objectives for some stream sites, but that site-specific data would be necessary to support these more liberal or conservative objectives.

The SCNF has determined that residual stubble heights between 4 and 6 inches are likely to be adequate for the action area at this time. A 4-inch standard will be applied where all RMOs are being met, while the 6-inch standard would be used where RMOs are not being met. The proposed stubble height move triggers/endpoint indicators will aid in preserving forage plant vigor, retaining sufficient forage to reduce cattle browsing of willows, stabilizing sediments, and indirectly limiting streambank trampling (Hall and Bryant 1995; Clary and Leininger 2000; Clary et. al. 1996; Clary 1999). The aforementioned scientific literature suggests that the SCNF's proposed stubble height objective of 4 to 6 inches will likely be effective in minimizing livestock damage to streambanks on the Allotments if permittee compliance rates remain high.

Streambank alteration is another move trigger/endpoint indicator that will be used to manage this Allotment. Streambank alteration is used to evaluate the amount of annual disturbance caused by livestock grazing, the levels of which can then be related to streambank stability and riparian vegetation conditions within the greenline (Cowley and Burton 2005). Bank trampling can lead to increased channel widths, increased surface area exposure to thermal radiation, decreased depths, and slower water velocity. These channel changes can cause sediment deposition mid-channel, which can further erode and reduce water storage in streambanks, resulting in changes to vegetation composition from willows and sedges to drier species. These impacts all reduce the quality of fish habitat. Bengeyfield (2006) reported that bank alteration levels were the most sensitive annual indicator they employed. On streams over-widened by historical overgrazing, they noted that between forage utilization, stubble height, and streambank alteration, streams managed for streambank alteration were the only streams consistently showing significant improvement after a 4- to 6-year period. They concluded that streambank alteration was the only standard that initiated the upward trend in stream channel shape that they believed was necessary to achieve riparian function. However, their study streams were predominately meadow systems. This Allotment contains a combination of meadow, wooded, and narrow valley streams. Therefore, use of a combination of move triggers/endpoint indicators, including bank alteration, will be most appropriate for this Allotment.

Channel conditions, which influence fish productivity, are affected by cattle and influenced by riparian vegetation, it is important to monitor both streambank alteration and vegetation utilization on this Allotment. Cowley and Burton (2005) suggested the maximum allowable streambank alteration which maintained streambank stability was 30%. It was further suggested that if 30% streambank alteration was the minimum necessary to maintain streambank conditions, that applying a 20% streambank alteration standard should allow for making significant progress in areas not meeting desired conditions. Streambank alterations of 20% or less are proposed for the Allotment. Meeting this standard is anticipated to allow complete recovery of alterations prior to the next year's grazing. Consistently limiting disturbance to less than 20% is expected to allow for an upward trend of stream conditions with stream widths narrowing and depths increasing over time, as demonstrated by Bengeyfield (2006). Further, the selected upland/riparian move triggers/endpoint indicators have been shown to prevent significantly accelerated streambank deterioration (Buckhouse et al. 1981). Other conservation measures will also aid in ensuring effects to streambank stability are inconsequential. For example, adjusting the cattle on-date according to range readiness will allow soil moistures to decrease, resulting in decreased susceptibility of streambanks to alteration, shearing, and widening. The application and adherence of this multi-indicator monitoring should help to avoid instances where an improper or insensitive standard is continually met and yet still leads to a downward trend in one of the RMOs and, ultimately, degraded habitat conditions. However, streams are not currently meeting RMOs on this Allotment, and although achievement of properly functioning conditions are expected to occur under this management regime, it is expected that it will take longer to achieve proper functioning condition under the proposed action than it would absent grazing.

In the action area, Snake River spring/summer Chinook salmon designated critical habitat is found in Hawley Creek. The proposed action has the potential to affect the following PBFs: (1) Water quality; (2) substrate; (3) forage/food; (4) natural cover; and (5) riparian vegetation. Any modification of these PBFs may affect freshwater spawning or rearing in the action area. Proper function of these PBFs is necessary to support successful adult and juvenile migration, adult holding, spawning, rearing, and the growth and development of juvenile fish. A brief summary of the consequence of the action on individual PBFs follows.

2.5.1.1 Water Quality

Habitat impacts associated with this Allotment are likely to include a few areas of denuded riparian vegetation on streambanks in each Unit. These areas will be small and limited to a few feet in width where cattle access streams to drink or cross. Denuded areas associated with watering and crossing sites are likely to result in a slight increase in turbidity for a short distance downstream during rainstorms or runoff events. However, given background levels of turbidity during runoff events, it will not likely be possible to distinguish between turbidity resulting from these minor grazing impacts and background turbidity. Cattle waste is likely to lead to a slight increase in nutrients; however, impacts will be localized and immeasurable as a result of proposed measures designed to limit cattle use in riparian areas and the wide distribution of cattle across the Allotment over each year. In addition, recovering riparian vegetation will function to trap and utilize nutrients deposited in riparian areas preventing the majority of waste from entering the water column.

Shade provided by vegetation can be important in keeping stream temperatures cool for salmonids (Zoellick 2004). Li et al. (1994) and Zoellick (2004) found that trout abundance decreased as solar input and water temperature increased. Water temperature is primarily affected by stream shade and channel geometry. Livestock grazing can directly increase water temperature if riparian vegetation removal results in increased solar exposure. Effects could occur if livestock remove large quantities of vegetation, either through foraging or trampling. Reduced riparian vegetation can result in increased streambank instability, which in turn leads to over-widened streams. Over-widened streams, or high W:D, expose a greater surface area of shallower water to the sun. This can further increase water temperatures.

Within the Allotment, riparian GES conditions fluctuate but generally are either meeting RMOs or at an upward trend (except Reservoir Creek). Water temperatures are believed to be meeting RMOs across the Allotment with the exception of Reservoir Creek. Hawley Creek has also had minor water temperature exceedances in warmer years. The warming influence Reservoir Creek has on Hawley Creek is somewhat mitigated by the introduction of cooler Big Bear Creek water as they both enter Hawley Creek at close proximity to each other. It is unknown what all of the causative factors are that are leading to elevated water temperatures, sediment, W:D, and mid-seral GES trends within Reservoir Creek. Although not necessarily attributed entirely to grazing, grazing is likely at least partially responsible for the degraded RMOs in Reservoir Creek. Continued grazing is likely retarding attainment of these RMOs. However, considering application of the more restrictive move-triggers and annual indicators proposed, NMFS expects that the proposed action should have considerably less potential to impact stream temperatures than has occurred in the past. These more restrictive standards should also allow for improvement to this RMO on Reservoir Creek.

The proposed action includes livestock move triggers, salting, and use of riders to keep livestock away from critical stream reaches. This should result in livestock having even less potential to impact stream temperatures than has occurred in the past. Proposed annual use standards serve to reduce potential livestock impact on water temperatures by minimizing riparian vegetation use and livestock impact to streambanks within the Allotment. Further, successful use of the described adaptive management program is expected to prevent site-specific impacts or a one-time exceedance of an annual use standard from leading to long-term habitat degradation. For these reasons, the proposed action is expected to have only minor effects on water quality in the action area.

2.5.1.2 Substrate

There are three sediment monitoring locations on the Allotment. The monitoring sites are located on Hawley, Reservoir, and Big Bear Creek, all within the Lower Ranch Unit. Available data from grazed portions of the action area indicate sediment levels in gravels within Hawley, Reservoir, and Big Bear Creeks are consistently exceeding PACFISH standards. Monitoring data on Hawley, Reservoir, and Big Bear Creeks indicate that these streams have exceeded the PACFISH standard of 25% fines at depth each time these sites were sampled since 2015. The monitoring locations for Reservoir and Big Bear Creek are both located at their confluences with Hawley Creek. The Hawley Creek monitoring site is located approximately 2 miles downstream from the other monitoring locations.

Livestock grazing within the Allotment will result in grazing, crossing, and watering on some stream reaches. These livestock activities will result in instances of sediment introduction at crossings, watering sites, or where foraging activities result in low levels of bank alteration. These sediment introductions are likely to cause minor and temporary increases in substrate fine sediment in low velocity areas immediately downstream. The use of riders, mineral deployment, supervised crossings, move triggers and annual use indicators are expected to prevent further degradation of streambank conditions, which would otherwise lead to elevated sediment levels. These measures should ensure that the existing functioning at risk sediment conditions within grazed areas of the Allotment are gradually improved, although likely reaching proper functioning condition slower than it would absent grazing.

2.5.1.3 Forage

More than half of some fish's food originates from terrestrial sources (Baxter et al. 2005; Saunders and Fausch 2007). Their remaining food is aquatic, with many of their prey species feeding on terrestrial leaf litter. Aquatic invertebrates, another major fish food source, depend heavily on terrestrial vegetation inputs. Riparian vegetation, therefore, is very important to fish growth and survival in natal streams. Saunders and Fausch (2007) reported grazing management can influence terrestrial invertebrate inputs, and demonstrated that short duration high-intensity grazing management resulted in large growth and abundance increases of fish when compared to season-long grazing management. Saunders and Fausch (2009) observed no difference in invertebrate biomass entering streams between sites managed for rotation grazing and ungrazed sites. The proposed action utilizes a rotational grazing scheme with moderate intensities over short durations. As a result, the action is expected to have effects consistent with the cited literature and thus no major impacts to forage inputs are anticipated along streams that are meeting riparian vegetation RMOs. These measures will also help to slowly improve conditions at DMAs that are not currently meeting the RMOs (Reservoir Creek MIM site).

2.5.1.4 Natural Cover

Salmonids appear to prefer spawning in close proximity of overhead cover (Bjornn and Reiser 1991) and overhead cover protects juvenile salmonids from predation. Cover can also influence livestock access to streams reducing trampling where cover is high or riparian vegetation is thick (Gregory and Gamett 2009). Livestock grazing will have a slight, short-term (1 to 6 months) reduction in overhead vegetative cover at each stream access point and in individual riparian areas receiving actual grazing use. However, these effects are expected to be localized, and not at a scale that would influence cover on a stream reach scale. Also, considering the prescribed riparian vegetation utilization standards, grazed riparian vegetation is expected to grow back prior to the start of the following grazing season. Available literature presented in the BA indicates the proposed utilization levels will allow maintenance of vegetation where currently meeting RMOs. Where riparian areas are not meeting RMOs, the SCNF proposes a more restrictive utilization standard be applied, which should result in continued improvement of riparian conditions in these areas. Because riparian conditions have shown demonstrable improvements or maintenance of appropriately functioning conditions in the action area under past grazing, it is reasonable to assume these patterns will continue and the action will have only minor effects on cover.

No information currently exists documenting the amount or locations of undercut banks available to fish as cover in the action area. However, as previously discussed, current bank stability ratings are "Functioning Appropriately" in areas accessible to livestock use. This suggests that past grazing activities are not currently affecting the available quantity of undercut banks providing cover for ESA-listed fish in the action area. Therefore, under the proposed action, NMFS anticipates these proper functioning streambank conditions to be maintained under the proposed grazing strategy.

2.5.1.5 Riparian Vegetation

The proposed move-triggers/annual utilization standards and conservation measures should greatly limit potential future disturbance of livestock to riparian vegetation on the Allotment. The SCNF's move-triggers/annual utilization standards and conservation measures are also expected to help maintain or achieve late seral status or PNC. A deferred rotation grazing system should ensure no one site is consistently grazed early or late in the season. This will allow for benefits of early and late grazing season to occur regularly, and ensure any detrimental impacts due to early or late season grazing are minimized. Waiting for appropriate range conditions to turn livestock out (range readiness) will result in less potential impacts to soils and better distribution of livestock. Salting at least one-quarter mile away from creeks, and riding for improved distribution of livestock will also help minimize cattle presence and potential impacts along streams and in riparian areas. Salt placed away from creeks will tend to encourage cattle to utilize other areas of the Allotment besides riparian areas. Riding will also serve the same purpose. These measures are expected to reduce impacts on riparian vegetation to minimal levels where the DMAs are meeting RMOs for riparian vegetation. These measures will also help to slowly improve conditions at DMAs that are not currently meeting the RMOs (i.e., Reservoir Creek MIM site).

Multiple habitat parameters are not meeting PACFISH standards, specifically in Reservoir Creek. The lack of meeting GES, and PACFISH standards for temperature and fines at depth, mean that ESA-listed fish will subject to the degraded habitat conditions until the point when habitat conditions recover, if or when ESA-listed fish inhabit the action area. Continued grazing in the degraded habitat will result in a slower recovery rate than without grazing. Information obtained from annual indicator monitoring will provide data and information to determine whether the current season's livestock grazing is meeting the intended criteria for livestock use in riparian areas. These data will provide information needed to refine and make annual changes to livestock grazing management practices necessary to continue to meet RMOs or to continue an upward trend toward the RMO (adaptive management).

2.6. Cumulative Effects

"Cumulative effects" are those effects of future state or private activities, not involving federal activities, that are reasonably certain to occur within the action area of the federal action subject to consultation [50 CFR 402.02 and 402.17(a)]. Future federal actions that are unrelated to the proposed action are not considered in this section because they require separate consultation pursuant to section 7 of the ESA.

There are approximately 260 acres of private land within the action area. The primary use of the private lands are agriculture and cattle grazing. It is assumed that the utilization of the private lands will likely continue in a similar manner as what is currently occurring. Additional cumulative effects are not expected to occur as remainder of the action area is managed by the SCNF.

2.7. Integration and Synthesis

The Integration and Synthesis section is the final step in our assessment of the risk posed to species and critical habitat as a result of implementing the proposed action. In this section, we add the effects of the action (Section 2.5) to the environmental baseline (Section 2.4) and the cumulative effects (Section 2.6), taking into account the status of the critical habitat (Section 2.2), to formulate the agency's opinion as to whether the proposed action is likely to: appreciably diminish the value of designated or proposed critical habitat as a whole for the conservation of the species.

There are approximately 260 acres of private land within the action area. The primary use of the private lands are agriculture and cattle grazing. It is assumed that the utilization of the private lands will likely continue in a similar manner as what is currently occurring.

Mineral exploration and mining were prevalent in the past but mining activity declined at the beginning of the 20th century. Livestock grazing is common in many of the subwatersheds used by this population, and has led to sedimentation, bank instability, and loss of riparian vegetation. Gazing management has helped decrease the effects of cattle and helped improve habitat conditions. However, the lasting impacts are still part of the limiting factors associated with depressed anadromous fish numbers. Increased water temperature and deposited fine sediment are the two main limiting factors in much of the habitat within the action areas streams.

Several habitat parameters, including temperature and fines at depth, are not meeting PACFISH standards, specifically in Reservoir Creek. The lack of meeting PACFISH standards means that if, or when, ESA-listed fish inhabit the action area they will encounter degraded habitat conditions for these parameters. Continued grazing in the degraded habitat will result in a slower recovery rate of habitat conditions than would occur absent grazing. However, information obtained from annual indicator monitoring will provide data and information necessary to determine whether the current season's livestock grazing is meeting the intended criteria for livestock use in riparian areas. These data will provide information needed to refine and make annual changes to livestock grazing management practices necessary to continue to meet RMOs or to continue an upward trend toward the RMO.

Because habitat conditions under the proposed action will continue to improve, albeit at a slower rate than would occur absent grazing, it is likely that the conservation value of the associated PBFs will also continue to improve within the action area. Because the conservation value of PBFs within the action area will improve, it is unlikely that the proposed action will appreciably diminish the value of designated critical habitat as a whole for the conservation of the species.

2.8. Conclusion

After reviewing and analyzing the current status of the critical habitat, the environmental baseline within the action area, the effects of the proposed action, the effects of other activities caused by the proposed action, and cumulative effects, it is NMFS' opinion that the proposed action is not likely to destroy or adversely modify Snake River spring/summer Chinook salmon designated critical habitat.

2.9. Conservation Recommendations

Section 7(a)(1) of the ESA directs federal agencies to use their authorities to further the purposes of the ESA by carrying out conservation programs for the benefit of the threatened and endangered species. Specifically, conservation recommendations are suggestions regarding discretionary measures to minimize or avoid adverse effects of a proposed action on listed species or critical habitat or regarding the development of information (50 CFR 402.02).

(1) To mitigate the effects of climate change on ESA-listed salmonids, follow recommendations by the ISAB (2007) to plan now for future climate conditions by implementing protective tributary, mainstem, and estuarine habitat measures; as well as protective hydropower mitigation measures. In particular, implement measures to protect or restore riparian buffers, wetlands, and floodplains; remove stream barriers; and to ensure late summer and fall tributary streamflows.

(2) Hawley Creek is the only stream within the action area that has designated critical habitat. Consider placing a MIM site on Hawley Creek.

(3) The SCNF should conduct a watershed analysis for Hawley Creek to determine what other factors are contributing to degraded conditions on the Allotment (e.g., sediment delivery from roads, dispersed camping impacts, etc.) Recommendations for management changes and/or actions to restore degraded PACFISH RMOs should be considered in the analysis.

(4) For priority watersheds, the SCNF indicates a 10% to 20% streambank alteration limit will be applied where bank stability is 70% to 89%. Application of a 20% streambank alteration for a site not meeting RMOs is the same bank alteration standard for sites that are meeting RMOs. Therefore, NMFS recommends application of a stricter 10% to 15% streambank alteration for sites not meeting the RMO and where bank stabilities range between 70% and 89%.

(5) Distributing cattle away from riparian areas with the use of riders helps protect the riparian habitat. The permittees have hired a rider for the past 10 years but riders are not mandatory. Consider making riding a mandatory part of the grazing permit on this Allotment, particularly when cattle are grazing the Lower Ranch Unit.

Please notify NMFS if the SCNF carries out any of these recommendations so that we will be kept informed of actions that minimize or avoid adverse effects and those that benefit listed species or their designated critical habitats.

2.10. Reinitiation of Consultation

This concludes formal consultation for Hawley Creek Cattle and Horse Grazing Allotment.

As 50 CFR 402.16 states, reinitiation of consultation is required and shall be requested by the federal agency or by NMFS where discretionary federal agency involvement or control over the action has been retained or is authorized by law and if: (1) The amount or extent of incidental taking specified in the ITS is exceeded, (2) new information reveals effects of the agency action that may affect listed species or critical habitat in a manner or to an extent not considered in this opinion, (3) the identified action is subsequently modified in a manner that causes an effect to the listed species or critical habitat that was not considered in the opinion, or (4) a new species is listed or critical habitat designated that may be affected by the action. Reinitiation of consultation may also be required shall future fish survey information reveal future occupancy of the action area by ESA-listed fish.

In the context of this opinion, there is no incidental take anticipated and the reinitiation trigger set out in (1) is not applicable. However, if any take occurs it will result in effects not considered in this opinion and reinitiation of formal consultation will be required because the regulatory reinitiation triggers set out in (2) and/or (3) will have been met.

3. MAGNUSON–STEVENS FISHERY CONSERVATION AND MANAGEMENT ACT ESSENTIAL FISH HABITAT RESPONSE

Section 305(b) of the MSA directs federal agencies to consult with NMFS on all actions or proposed actions that may adversely affect EFH. Under the MSA, this consultation is intended to promote the conservation of EFH as necessary to support sustainable fisheries and the managed species' contribution to a healthy ecosystem. For the purposes of the MSA , EFH means "those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity", and includes the physical, biological, and chemical properties that are used by fish (50 CFR 600.10). Adverse effect means any impact that reduces quality or quantity of EFH, and may include direct or indirect physical, chemical, or biological alteration of the waters or substrate and loss of (or injury to) benthic organisms, prey species and their habitat, and other ecosystem components, if such modifications reduce the quality or quantity of EFH. Adverse effects on EFH may result from actions occurring within EFH or outside of it and may include site-specific or EFH-wide impacts, including individual, cumulative, or synergistic consequences of actions (50 CFR 600.810). Section 305(b) of the MSA also requires NMFS to recommend measures that can be taken by the action agency to conserve EFH. Such recommendations may include measures to avoid, minimize, mitigate, or otherwise offset the adverse effects of the action on EFH [CFR 600.905(b)]

This analysis is based, in part, on the EFH assessment provided by the SCNF and descriptions of EFH for Pacific Fishery Management Council (PFMC 2014), contained in the fishery management plans developed by the PFMC and approved by the Secretary of Commerce.

3.1. Essential Fish Habitat Affected by the Project

The PFMC has identified five habitat areas of particular concern (HAPCs), which warrant additional focus for conservation efforts due to their high ecological importance. Three of the five HAPC are applicable to freshwater within the action area and include: (1) Complex channels and floodplain habitats; (2) thermal refugia; and (3) spawning habitat.

3.2. Adverse Effects on Essential Fish Habitat

The proposed action's adverse effects on EFH are the same as the effects to designated critical habitat described above in section 2.5.1. These impacts are largely related to sustaining altered habitat conditions not meeting RMOs within the Allotment for a longer period of time than would occur without the action. Although instream sediment levels and water temperatures are expected to improve during the permit term, grazing at the proposed utilization levels is expected to retard recovery rates compared to no grazing.

3.3. Essential Fish Habitat Conservation Recommendations

NMFS determined that the following conservation recommendations are necessary to avoid, minimize, mitigate, or otherwise offset the impact of the proposed action on EFH:

(1) To mitigate the effects of climate change on ESA-listed salmonids, the SCNF should follow recommendations by the ISAB (2007) to plan now for future climate conditions by implementing protective tributary, mainstem, and estuarine habitat measures; as well as protective hydropower mitigation measures. In particular, the SCNF should implement measures to protect or restore riparian buffers, wetlands, and floodplains; remove stream barriers; and to ensure late summer and fall tributary streamflows.

(2) Hawley Creek is the only stream within the action area that has designated critical habitat. Consider placing a MIM site on Hawley Creek.

(3) The SCNF should conduct a watershed analysis for Hawley Creek to determine what other factors are contributing to degraded conditions on the Allotment (e.g., sediment delivery from roads, dispersed camping impacts, etc.) Recommendations for management changes and/or actions to restore degraded PACFISH RMOs should be included considered in the analysis.

(4) For priority watersheds, the SCNF indicates a 10% to 20% streambank alteration limit will be applied where bank stability is 70% to 89%. Application of a 20% streambank alteration for a site not meeting RMOs is the same bank alteration standard for sites that are meeting RMOs. Therefore, NMFS recommends application of a stricter 10% to 15% streambank alteration for sites not meeting the RMO and where bank stabilities range between 70% and 80%.

(5) Distributing cattle away from riparian areas with the use of riders helps protect the riparian habitat. The permittees have hired a rider for the past 10 years but riders are

not mandatory. The SCNF should consider making riding a mandatory part of the grazing permit on this Allotment.

Fully implementing these EFH conservation recommendations would protect Chinook EFH, by avoiding or minimizing the adverse effects described in section 3.2, above, for FMPs: Pacific Coast salmon, Pacific.

3.4. Statutory Response Requirement

As required by section 305(b)(4)(B) of the MSA, the SCNF must provide a detailed response in writing to NMFS within 30 days after receiving an EFH Conservation Recommendation. Such a response must be provided at least 10 days prior to final approval of the action if the response is inconsistent with any of NMFS' EFH Conservation Recommendations unless NMFS and the federal agency have agreed to use alternative time frames for the federal agency response. The response must include a description of the measures proposed by the agency for avoiding, minimizing, mitigating, or otherwise offsetting the impact of the activity on EFH. In the case of a response that is inconsistent with the Conservation Recommendations, the federal agency must explain its reasons for not following the recommendations, including the scientific justification for any disagreements with NMFS over the anticipated effects of the action and the measures needed to avoid, minimize, mitigate, or offset such effects [50 CFR 600.920(k)(1)].

In response to increased oversight of overall EFH program effectiveness by the Office of Management and Budget, NMFS established a quarterly reporting requirement to determine how many conservation recommendations are provided as part of each EFH consultation and how many are adopted by the action agency. Therefore, we ask that in your statutory reply to the EFH portion of this consultation, you clearly identify the number of conservation recommendations accepted.

3.5. Supplemental Consultation

The SCNF must reinitiate EFH consultation with NMFS if the proposed action is substantially revised in a way that may adversely affect EFH, or if new information becomes available that affects the basis for NMFS' EFH Conservation Recommendations [50 CFR 600.920(l)].

4. Data Quality Act Documentation and Pre-Dissemination Review

The DQA specifies three components contributing to the quality of a document. They are utility, integrity, and objectivity. This section of the opinion addresses these DQA components, documents compliance with the DQA, and certifies that this opinion has undergone pre-dissemination review.

4.1. Utility

Utility principally refers to ensuring that the information contained in this consultation is helpful, serviceable, and beneficial to the intended users. The intended users of this opinion are the SCNF. Other interested users could include the Grazing permittee(s) and the Shoshone–Bannock Tribes. Individual sections of this opinion were provided to the SCNF and the Shoshone–

Bannock Tribes. The document will be available within 2 weeks at the NOAA Library Institutional Repository [https://repository.library.noaa.gov/welcome]. The format and naming adheres to conventional standards for style.

4.2. Integrity

This consultation was completed on a computer system managed by NMFS in accordance with relevant information technology security policies and standards set out in Appendix III, 'Security of Automated Information Resources,' Office of Management and Budget Circular A-130; the Computer Security Act; and the Government Information Security Reform Act.

4.3. Objectivity

Information Product Category: Natural Resource Plan

Standards: This consultation and supporting documents are clear, concise, complete, and unbiased; and were developed using commonly accepted scientific research methods. They adhere to published standards including the NMFS ESA Consultation Handbook, ESA regulations, 50 CFR 402.01 et seq., and the MSA implementing regulations regarding EFH, 50 CFR 600.

Best Available Information: This consultation and supporting documents use the best available information, as referenced in the References section. The analyses in this opinion and EFH consultation contain more background on information sources and quality.

Referencing: All supporting materials, information, data and analyses are properly referenced, consistent with standard scientific referencing style.

Review Process: This consultation was drafted by NMFS staff with training in ESA and MSA implementation, and reviewed in accordance with West Coast Region ESA quality control and assurance processes.

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